The Mining Journal
RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 760.---Vol. XX.] LONDON, SATURDAY, MARCH 16, 1850. [Price 6d.

SPARE MINING MATERIALS AND OLD WROUGHT AND CAST-IRON FOR SALE.

MR. W. PENBERTHY will SELL, BY PUBLIC AUCTION, on Tuesday, the 19th inst., at Twelve o'clock at noon, at WHEAL VOR MINE, in the parish of BREAGE, CORNWALL, the following

MINING MATERIALS—viz.:

1 80-inch PUMPING ENGINE, with or without boilers.
1 49-inch ditto
1 18-inch WINDING ENGINE and BOILER.
1 12-head CAST-IRON STAMPS AXLE and FITTINGS.
9-feet PUMPS, from 12 to 17-inch bore.

Workings, door and H-pieces, cases, with stuffing-boxes and glands, complete, from 12-inch to 19-inch bore, plunger poles, from 12-inch to 19-inch diameter, faggotted rod and cap plates, staples and glands, and iron and brass buckets, and prongs in great variety, a Phillips's mining dial (by Jordan) and stand, a telescope, spirit level and stand, an eight-day timepiece and case, several engine counters and boxes, and a great quantity of BRASS and OLD CAST and WROUGHT-IRON.

The MATERIALS at WHEAL VOR are DAILY ON SALE by private contract, and will continue to be so up to the time of sale by auction; and afterwards, for those remaining unsold, application to be made to Capt. R. Blight, jun.

Dated March 6, 1850.

TO ENGINEERS, RAILWAY CONTRACTORS, BOILERMAKERS, AND OTHERS.

MESSRS. BOYES & SAFFELL have received instructions from the official manager of the ANTI-DRY-ROT COMPANY to SELL, BY AUCTION, on the premises of Messrs. Turner and Montague, Orchard House, BLACKWALL, on Thursday, the 21st inst., at Twelve o'clock,

TWO PAIRS OF POWERFUL BRASS FORCE PUMPS,

Two capital stout wrought-iron cylinders (one 35 feet long and the other 31 feet long, each 6 feet in diameter), formerly used for Kyanising timber by pressure; also a powerful CRAB ENGINE, large water cistern, iron-bound oak vat, pumps, brass piping, truck, and other articles.

May be viewed the day prior.—Catalogues may be had of Mr. W. Goodchap, the official manager, 71, Cheapside; of Messrs. R. and W. G. Roy, solicitors, 42, Lothbury; at the place of sale; and at the auctioneers' offices, 3, Abchurch-lane, City.

TO IRONMASTERS.—MOST IMPORTANT SALE OF FREEHOLD IRON-WORKS, WEST BROMWICH, SOUTH STAFFORDSHIRE.

MR. THOMAS DANKS will SELL, BY AUCTION, on Thursday, the 28th of March inst., at the house of Mr. Machin, Union Hotel, Union-street, BIRMINGHAM, at Twelve for One o'clock, by order of the executors of the late Mrs. Mary Hill, deceased, the ENTIRETY of all that extensive, well-known, and celebrated property, called the

GOLD'S HILL IRON-WORKS, WEST BROMWICH,

The works comprise a well-arranged FORGE, 17 PUDDLING and MILL FURNACES, BOILER PLATE, SHEET, RAIL, and MERCHANT MILLS, worked by one of Boulton and Watt's double-power steam-engines, with 54-inch cylinder, and working a 7-ft. 6-in. stroke, 116-horse power, with air-pump and condenser, cast-iron beam and connecting-rod, governor, &c., complete; cranes, lathes, gas apparatus and fittings, warehouses, offices, manager's house, and upwards of 10 acres of land.

The above works have been laid down upon the most approved principle, and are now in full operation, in the occupation of Messrs. Bagnall and Sons.

These works possess peculiar advantages, being surrounded by collieries, canal communication, and are situate about midway between the Great Bridge and Wednesbury South Staffordshire Railway Goods Station.

For further particulars apply to Mr. Thomas Danks, auctioneer, at his offices, Dudley.

MINERALS ON LEASE.

TO BE LET, BY PROPOSAL, for a term of years, with immediate entry, the MINERALS OF IRON ORE and IRON STONE, under the estate called FRIZINGTON PARKS, in the parish of ARLECDON, in the county of CUMBERLAND, the property of the Baroness de Sternberg, distant about 5 miles from Whitehaven. These minerals were worked in the years 1838, 1839, 1840, and 1841, and upwards of 10,000 tons of excellent "Cumberland Red Ore" were then extracted within a small compass.

Mr. Joseph Wright, the tenant, at Parks, will show the estate and former workings; and further particulars may be known on application to Messrs. Armistead and Brockbank, solicitors, 42, Queen-street, Whitehaven, by whom proposals in writing will be received until Thursday, the 21st of March inst., when the tenant will be declared at Two o'clock in the afternoon.—Whitehaven, March 1, 1850.

COPPER MINE FOR SALE, IN CANADA EAST, near QUEBEC.—The *Canadien* says—"That a copper mine has been recently discovered at SaultMarie (Nouvelle Beance), in the seigniory of M. Perrault, about 30 miles south of Quebec, and 3 or 4 miles from the River Chaudiere. Metallic veins, varying from 1 foot to 4 feet wide, have been followed, and examined, in the space of 1000 feet in length. There has also been found a vein of argentiferous lead, encouraging the supposition that a vein of silver is not far off. The mine is not far from where gold is found on Mr. De Lery's seigniory."—The above most valuable PROPERTY is now OFFERED FOR SALE, BY PRIVATE CONTRACT.

Further particulars may be obtained by addressing (pre-paid) Madame Perrault, Pilton House, Barnstaple, Devon; or to C. Perrault, Esq., Montreal, Canada East.

VALUABLE INVESTMENT.—The COEDCAE COAL AND COKE COMPANY are desirous of having a PARTNER in one of the MOST ADVANTAGEOUS COLLIERIES IN SOUTH WALES, which is situate within 14 miles of the port town of Cardiff, to which place it is conveyed by the Taff Vale Railway, a branch of which extends to the colliery. They are at present in a position to work 100 tons of coal daily, which is of a very superior quality, and adapted for household use and also for coking. No. 1 vein is worked by level. There are also six new coking ovens in daily work, 18×12×5½, together with a newly-erected horizontal engine of high-pressure, for the purpose of sinking to the Cymmer vein. No. 3 is the Dinas vein, so celebrated for coking. The engine, machinery, and plant are in excellent repair.

The above will be found a most advantageous opportunity for investing capital, as the demand for the coal is extensive, and it is highly esteemed in the market in coal and coke.

For particulars apply to Mr. Jos. Phillips, agent, Coedcae Colliery, Pontypridd, near Cardiff.—March 4, 1850.

BLAIR IRON-WORKS.—These extensive IRON-WORKS, with the LEASES of the MINERAL FIELDS, as formerly advertised, will be EXPOSED FOR PUBLIC COMPETITION on or about the month of APRIL next, if not previously disposed of by private bargain.—In the meantime offers will be received, and information afforded, by Mr. Brown, 35, St. Vincent-place, Glasgow.

STRUVE'S PATENT MINE VENTILATOR.

Cost—£150.

TO COLLIERY PROPRIETORS.

Quantity of air passed through a Mine almost unlimited, to the extent of 200,000 cubic feet per minute, if necessary—depending on size of apparatus.

COST of an APPARATUS to produce a ventilation of 30,000 cubic feet per minute, ONE HUNDRED and FIFTY POUNDS, exclusive of patent right. This amount of ventilation would be sufficient for a mine working 150 tons per day, provided it was not very fiery; in which case it would be desirable to provide for 30,000 cubic feet of air per minute. The capabilities of the Ventilator may be doubled at any future time, at a comparatively small cost.

The Ventilator has been at work for upwards of nine months at the Eaglesbush Colliery, near Neath, working under a rarefaction of 2½ to 3 inches of water, which demonstrates the impracticability of furnace ventilation, when the shafts are shallow and the airways small.—It is practical to rarify a mine by this ventilator to the extent of 2 feet of water, or 2 inches of mercury.

LICENSES will be GRANTED on application to

Mr. WILLIAM PRICE STRUVE, Swansea,
Civil Engineer and Mineral Surveyor.

BELL'S NEW PATENT LIQUID CEMENT IS READY FOR USE, simple in its application, and only ONE-EIGHTH the cost of oil paint. For beauty it is pre-eminent over all other materials used on the fronts of houses, giving the exact appearance of fine cut stone; can be used at once on fresh Roman cement, or other plastering; is particularly calculated for country houses, villas, or gate entrances, that have become soiled or dingy, which may be beautified in any weather at a trifling cost.—Sold in casks of one, two, or three cwts., at 8s., 15s., and 21s. each, casks inclusive.

BELL'S PATENT MINERAL PAINT, more permanent and not half the cost of any other paint; invaluable as a coating for all kinds of wood or metal work, roofing, felt, leaky roofs, spouts, gutters, doors, sheds, railing, all kinds of out-door work; requires no preparation, and will dry in a few hours.—Brilliant black, 2s.; rich brown, 2s. 9d. per gallon. Light colours proportionately cheap; and as they will keep for any length of time, well calculated for exportation. G. BELL & Co.,

2, Wellington-street, Goswell-street, London.

THE PATENT OFFICE AND DESIGNS REGISTRY.
No. 210, STRAND, LONDON.

INVENTORS will receive (gratis), on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION of INVENTIONS and DESIGNS, with Reduced Scale of Fees.

Messrs. F. W. CAMPIN and CO. offer their services, and the benefit of many years experience, in SECURING PATENTS and REGISTRATIONS OF DESIGNS, with due regard to VALIDITY, economy, and dispatch—assisted by scientific men of repute.

Also, in MECHANICAL and ENGINEERING DRAWINGS, whether connected with Patents, Railways, or otherwise, by a staff of first-rate draftsmen.

Application personally, or by letter, to F. W. Campin and Co., No. 210, Strand (corner of Essex-street).

STEAM TO INDIA AND CHINA, via EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY

BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—Malta—On the 20th and 29th of every month. Constantinople—On the 29th of the month. Alexandria—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th 17th, and 27th of the month.

For plans of the vessels, rates of passage-money, and to secure passages and ship cargo, apply at the company's offices, No. 122, Leadenhall-street, London; and 57, High-street, Southampton.

IMPROVED WIRE ROPE.—The UNDERSIGNED, in tendering their best thanks for the liberal support they have hitherto received, respectfully solicit attention to the vast IMPROVEMENTS which new machinery and attention has enabled them to effect in the MANUFACTURE of ANDREW SMITH'S PATENT WIRE ROPE, more particularly his FLAT ROPE, which they can now produce of a description far superior to any previously offered to the public.

WILKINS & WEATHERLY.

Patent Wire Rope Works, 39, High-street, Wapping, London.

STEVENS AND SON, GAS ENGINEERS, IRON and BRASS FOUNDERS, and CONTRACTORS for the ERECTION of GAS-WORKS, inclusive of APPARATUS, of every description, for the MANUFACTURE OF GAS, and the FITTINGS of from 20 to 20,000 LIGHTS, whether for Public or Private use.

Established in 1815.

MANUFACTURERS of STATION METERS and GOVERNORS; and CONSUMERS' GAS-METERS, of the most approved construction.

CAST-IRON MAINS SUPPLIED and LAID for GAS or WATER; Street Lamp-posts, Brackets, and Bronze, Copper, Iron, or Tin Lanthorns.

TANKS and LIQUOR BACKS, of any dimensions, in Cast-iron or Galvanised Wrought-iron, constructed and erected.

The PATENT SEMAPHORE RAILWAY SIGNALS; and RAILWAY LAMPS, for Stations, Engines, Carriages, Signalmen, &c.

REGISTERING TURN-STILES, for Bridges, Piers, Baths, Public Gardens, &c.

ARCHITECTURAL DESIGNS CARVED in WOOD, or MODELLED in WAX or COMPOSITION, by Artists on the premises, and CAST in BRONZE, BRASS, IRON, &c.

And DRAWINGS, PLANS, and SPECIFICATIONS submitted.

Address—STEVENS & SON, DARLINGTON WORKS,
19, *SOUTHWARK BRIDGE-ROAD, LONDON.*

TOUGHENED CAST-IRON—STIRLING'S PATENT.

No. 1—For SMALL and MEDIUM CASTINGS.
No. 2—For HEAVY CASTINGS.
No. 3 *(Extra)*—For ROLLS, HEAVY SHAFTS, and VERY HEAVY CASTINGS.

The above is by far the strongest Cast-Iron made, and is now being extensively used where strong castings are required.

Further particulars may be obtained on application to

Messrs. GARDEN & MACANDREW,
27, Queen-street, Cheapside, from whom also the IRON can be PROCURED.

UNSTON IRON WORKS, NEAR SHEFFIELD.—Messrs. RANGELEY, WRIGHT, and Co. invite the attention of IRON MANUFACTURERS, IRON FOUNDERS, &c., to their DERBYSHIRE PIG-IRON (smelted entirely with coke), which they can with confidence recommend for all purposes where purity of metal, combined with tenacity or strength, is an object. Their No. 3 pig-iron is sufficiently fluid for all descriptions of foundry-work. PIPING made from this quality will admit of almost any amount of hydraulic pressure. As a mixture with tender irons, or for purposes requiring great strength, their No. 4 is particularly adapted. For FORGE PURPOSES, the loss from waste in cinder, &c., is much below the usual average, and the product a very superior iron.

Messrs. R., W., and Co. also beg to inform RAILWAY CONTRACTORS, ENGINEERS, GAS and WATER-WORKS COMPANIES, BUILDERS, MILLWRIGHTS, &c., that having purchased an extensive assortment of models and apparatus from Messrs. Wm. Graham and Co., of Milton Iron-works (who have declined business), and having engaged experienced workmen from that establishment, they are in a position to furnish ALL DESCRIPTIONS OF CASTINGS, suitable for the above branches, and at moderate prices.

COMBMARTIN AND NORTH DEVON LEAD AND SILVER SMELTING COMPANY.

REGISTERED UNDER THE JOINT-STOCK COMPANIES' ACT.

The SMELTING-WORKS of the above COMPANY are in ACTIVE OPERATION.—SAMPLES of LEAD and SILVERY ORES are requested to be forwarded to Captain Cornelius Bawden, Combmartin, near Ilfracomb, North Devon.

Payment for ores by bill, at three months, or cash if required.

Combmartin, Jan. 1, 1850. THOMAS L. WILLSHIRE, Secretary.

CARADON VALE MINE,
SAINT IVE, NEAR LISKEARD, CORNWALL.

Purasers—Mr. John Stephens, St. Ive, Liskeard; Mr. Charles Collins, Exeter.

Bankers—Mr. Sanders, Exeter; the Devon and Cornwall Bank, Exeter and Liskeard.

This mine is situate in the parish of SAINT IVE, near LISKEARD, CORNWALL, and was worked upon by several poor experienced miners a short time since, to develope that which they felt convinced existed there—viz., rich copper ore. They drove an adit 70 fms. to hill, and sunk a winze 12 or 15 fms. under that adit to cut the lode, when to their dismay they were completely impeded by the large quantity of water issuing from the lode, they having only water-barrels to draw up the same; sufficient was, however, seen to know that rich yellow and black copper ore existed against the cross-course. There are seven lodes, well defined, and carrying the most extraordinary gossan that can be seen, with rich peach, prian, felspar, and ore, and every other qualification to convince miners that great riches exist beneath.

It is proposed that the mine be divided into 1536 shares, at five shillings per share, being the first deposit, and the liability of each shareholder is not likely to exceed £4 per share, as it is not expected more than £1 per share will be required. The calls, too, are moderately fixed, not to exceed 5s. per share every two months.

A large number of the shares are already taken up.

Application for the remainder may be made to Mr. Thomas Sanford, Exeter; Mr. John Stephens, St. Ive, Liskeard; Mr. Edward Suter, Exeter; Mr. James Timewell, Exeter; Mr. John Seymour, St. Cleer, Liskeard; and Mr. Henry Vatcher, Exeter.

To the Committee of Caradon Vale Mining Company.

Gentlemen,—I beg to state that I have visited this mine, and have much pleasure in offering you my observations upon it. I find that one lode only is opened on by a shode pit, where it presents a most flattering appearance, being composed of very rich gossan, felspar, quartz, and beautiful white prian. The strata is a soft clay slate, and very congenial for mineral. I have not the least doubt but that this lode will be found productive when explored. No practical miner can dispute the favourable appearance of the lode. There are several lodes farther north, but only one has yet been wrought on, and that only to a small extent; this lode is driven on about 15 fms. west, and about 8 fms. east from the adit, which came in about 12 fathoms from surface; the lode in the western end is about 4 feet wide; I consider it to be an extraordinary lode. I never saw one more promising at such a shallow level; it is composed of gossan, being impregnated with rich black oxide of copper, spots of yellow copper, blue peach, felspar, and mundic; it also carries a small flookan on the foot wall. A cross-course in the western end intersects the lode, and the backs are all corroded over with copper greens, which indicates that the lode, as well as the strata, is most completely mineralised, and I have no doubt but that the lode will prove very productive, both east and west of the cross-course. At a few fathoms deeper there is a shaft sunk, about 14 fathoms under the adit, and a cross-cut driven, and the lode cut by means of a cross-course, which let down a great deal of water; and, from the want of machinery, the poor miners, who worked at their own expense, were obliged to abandon it, without having cut through the lode, so as to develope its size or quality. I consider the mine to be a most promising investment, and all who engage in it cannot fail to be rewarded richly for their enterprise; the mine, from its situation, can be worked easy, and at a small outlay. JOHN SPARGO.

Downgate, Stoke Climsland, Dec. 18, 1849.

GUADALCANAL SILVER MINING ASSOCIATION.—At a Special General Meeting of the shareholders of this association, held on Monday, the 11th of March inst., it was proposed, seconded, and carried unanimously:—

That it is the opinion of this meeting, that if parties holding any of the 2000 new shares of this company, now in arrear of calls, or upon which calls are still payable, shall, on or before Wednesday, the 8th day of April, pay up all the calls remaining payable on such new shares; such shares upon which the said calls shall be paid by that day, and all others of the said 2000 shares upon which the calls have been already fully paid, shall be entitled to the preferences and advantages set forth in the resolution of the General Meeting of the Company, held upon the 29th of November last.

That it is also the opinion of this meeting that the Deed of Settlement of the Company, about to be prepared, should contain provisions for recognising the preferences and advantages upon the shares which shall become entitled to the same, and that a Special General Meeting of the Company should be held upon the 3d day of April next, to take into consideration and agree upon the said Deed of Settlement.

Notice is hereby given, that a SPECIAL GENERAL MEETING of the shareholders will be HOLDEN at the offices of this Association on Wednesday, the 3d day of April next, for the purpose of considering and agreeing upon the Deed of Settlement.

By order, H. T. RYDE, Secretary.

34, Broad-street-buildings, London, March 11, 1850.

TO IRONMASTERS.—The Advertiser is desirous of meeting with a SITUATION as MANAGER: he has a thorough knowledge of the manufacture of iron, and is competent to undertake the management of either blast-furnaces or forge. Unexceptionable references can be given.—Applications (by letter) to "J. S.," Post-office, Birmingham, will meet with due attention.

TO CAPITALISTS—COBALT AND NICKEL TRADE.—An opportunity now presents itself for any PERSON with CAPITAL to embark in the COBALT and NICKEL TRADE. The concern is now in operation.—For particulars apply (by letter) to "U. S. V.," Post-office, Birmingham.

TO NOBLEMEN AND CAPITALISTS.—The Proprietors of an extensive MANUFACTURING CONCERN, working their own MINES and MINERALS, are disposed to treat with a Gentleman, who can command £40,000 or £50,000, to take a share in the same. It would be a very safe and lucrative investment, and such as is rarely met with.

Applications from principals, or their solicitors only, may be made to "A. C.," care of Messrs. Heather and Moger, solicitors, Paternoster-row, London.

DEVON AND COURTENAY CONSOLS MINE.—WANTED, by the ADVENTURERS in the DEVON AND COURTENAY CONSOLS MINE, at Tavistock, an active CAPTAIN, to CONDUCT all the OPERATIONS of the MINE. There is a powerful steam-engine, and a monthly sampling of ore. He will be required to perfectly understand the pitwork, dressing the ore, as well as all other operations of the mine.—Testimonials, with the amount of salary, to be sent to Mr. Wm. Rendle, the purser, 13, Octagon, Plymouth, on or before the 25th inst.

March 13, 1850.

RUNNAFORD COOMBE MINE.—An excellent opportunity is now offered to any PERSON wishing to PURCHASE SHARES in the above valuable concern. Mr. CHENHALL has a FEW SHARES to DISPOSE OF, at £4 per share.—Apply to Mr. Chenhall, 4, King-street, Woolwich.

MINERAL PROPERTY.—TO BE DISPOSED OF, a valuable MINERAL PROPERTY, in the centre of the mining district of CARDIGANSHIRE, within 3 miles of the Lisburne Mines. The lodes of the adjacent mines run through the property, which contains upwards of 110 acres, with the right of working minerals on an additional extent of 500 acres beyond that cited as surface, which would be disposed of with the mineral rights. There is ample water-power, and the fee-simple of the soil, with minerals, will be disposed of by the proprietor.—Particulars may be acquired on application to Mr. Henry English, 25, Fleet-street, London.

MINING SHARES.—PARTIES having SHARES to DISPOSE OF in DIVIDEND-PAYING MINES, or OTHERS, can obtain PURCHASERS by enclosing a list of the Number and Price of such Shares, when the same will be duly registered for sale, and a commission charged only on such sale taking place.—For further particulars apply to Mr. Durrant, Mining Offices, 58, Lombard-st., London.

MINING OFFICES, 3, GEORGE-YARD, LOMBARD-STREET, LONDON.—Mr. T. P. THOMAS is a BUYER of SHARES in Wheal Seton, North Pool, Treviskey and Barrier, Condurrow, South Wheal Frances, South Basset, South Tolgus, Trelawyn, Mary Ann, Tolcarne, Tincroft, East Pool, Pendarves Consols, Lisburne Mines, Esgair Llee, and West Wheal Treasury; and is a SELLER in Penzance Consols, Bedford, East Gunnis Lake, Cook's Kitchen, Carn Brea, Wheal Comfort, Gustavus Mines, Nanteos, Camborne Consols, Court Grange, Bwich Consols, Stray Park, Tryphena, Wheal Margaret, Wheal Owls, Providence Mines, and South Trelawny.

T. P. THOMAS is generally in a position to BUY and SELL at close market prices, and he will be happy to give information as to prices, &c., upon application.

MR. H. B. RYE, GENERAL AGENT for the DISPOSAL of MINING PROPERTIES, invites the attention of his friends and the public to the unusually FAVOURABLE TERMS on which INVESTMENTS may now be made in MINE SHARES. Ample information (for the guidance of buyers) may be had at his offices, 77, Old Broad-street, London.

MR. T. A. READWIN, MINING OFFICES,
2, *WINCHESTER-BUILDINGS, OLD BROAD-STREET, LONDON.*

MR. C. S. RICHARDSON, CIVIL ENGINEER, LAND AND MINING SURVEYOR.
No. 15, OLD BROAD-STREET, LONDON.

MR. GEORGE BATE, Jun., CIVIL ENGINEER AND SURVEYOR, *WOLVERHAMPTON.*

Offices in Queen-street, corner of Piper's-row.

N.B.—UNDERGROUND MINING SURVEYS accurately executed.

JAMES LANE, MINING SHARE DEALER,
80, *OLD BROAD-STREET, LONDON.*

KINZIGTHAL MINING ASSOCIATION.—Notice is hereby given, that all SHARES upon which the CALL made December 15th, 1849, of 5s. per share, shall not be paid on or before the 21st March, 1850, will, in accordance with the statutes, become absolutely FORFEITED.

By order of the board, GEO. COPELAND CAPPER, Sec.

1, Adelaide-place, February 19, 1850.

TINCROFT MINING COMPANY.—Notice is hereby given, that the ANNUAL GENERAL MEETING of the shareholders in this company will be HELD here on Wednesday, the 10th day of April next, at Three o'clock precisely.

Salvador House, March 13, 1850.

UNION TIN SMELTING COMPANY.—Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of this Company will be HELD at this office on Wednesday, the 10th April next, at Two o'clock precisely, when the half-yearly statement of the company's affairs, to the 31st Dec. last, will be submitted, and a dividend declared. P. WATSON, Secretary.

Salvador House, London, March 8, 1850.

PENNANT AND CRAIGWEN CONSOLIDATED LEAD MINING COMPANY.—Notice is hereby given, that, in pursuance of a resolution, passed unanimously at the General Meeting of shareholders, held on Tuesday, the 19th ult., all SHARES on which there were ARREARS OF CALLS have BEEN FORFEITED, and the number, consequently, has been reduced to 6201 shares. Certificates for the same, duly numbered from 1 to 6201 inclusive, have been issued, and henceforth all transfer of shares, without certificates, will, therefore, be invalid.

Any shareholder who should have failed to receive a printed list of the present proprietors is requested to communicate with the purser.

57, Threadneedle-street, March 12, 1850. WM. W. MANSELL, Acting Purser.

ASTURIAN MINING COMPANY—IN LIQUIDATION.—Notice is hereby given, that the REAL ESTATE, the CONCESSIONS of COAL and IRON MINES, and the WORKS of this Company at MIERES DEL CAMINO, and in the adjacent districts, the QUICKSILVER MINES of LA EUGENIA, near Pola de Lena, and the COAL MINES at SANTO FIRME, situate in the province of Oviedo and principality of the Asturias, in Spain, have been ordered by the Board of Directors and Liquidators TO BE SOLD, under TENDER—such tenders also to include the purchase, by valuation, in the usual manner, of the STOCK IN HAND, of all kinds, implements, and articles used in the various departments of manufacture at the said works.

The tenders to be subject to the approval of a General Meeting of the Company, to which is reserved the right of accepting the offer which may appear most beneficial to the shareholders of the said company.

A description of the property and the conditions of sale are now ready for inspection, at Madrid, with Messrs. O'Shea and Co., bankers, and Edward Kelly, Esq.; at Mieres del Camino, with the Company's superintendent; at Gijon, with J. J. Kelly, Esq., British Vice Consul; and at the Company's offices in London.

All tenders must be sent to the principal office of the Company, 9, Austinfriars, London, on or before the 11th day of March next, addressed to the "Directors and Liquidators of the Asturian Mining Company," to whom also should be addressed all inquiries respecting the sale.

The works may be viewed on application to Mr. George Lambley, the superintendent, at Mieres del Camino. By order of the Board of Directors and Liquidators,

H. MACKENZIE, Secretary.

Offices of the Company, 9, Austinfriars, London, Feb. 22, 1850.

ASTURIAN MINING COMPANY, in LIQUIDATION, and the PROPOSED ANGLO-ASTURIAN MINING COMPANY.—Notice is hereby given, that, in case the proposed Deed of Constitution of the proposed new Anglo-Asturian Mining Company shall be approved of at the Special General Meeting of the first above-named company, appointed to be HELD on the 26th day of March next, a MEETING of the shareholders who shall have agreed to form the said proposed new Anglo-Astnrian Mining Company will be held on the same day, and at the same place, immediately after the said special general meeting of the said first-named company, for the purpose of approving the said Deed, and authorising the application for the statutes of an anonymous company, in conformity with the provisions of the said Deed, by the persons nominated for that purpose.

By order of the committee appointed the 27th November, 1849,
M. FORRISTALL, Chairman of the said Committee.

9, Austinfriars, London, Feb. 23, 1850.

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY	Asiatic—5, New Burlington-street	3 P.M.
MONDAY	Statistical—12, St. James's-square	3 P.M.
	British Architects—16, Grosvenor-street	8 P.M.
	Chemical—142, Strand	8 P.M.
	Medical—3, Bolt-court, Fleet-street	8 P.M.
	Pathological—21, Regent-street, Waterloo-place	8 P.M.
TUESDAY	Linnæan—Soho-square	8 P.M.
	Horticultural—21, Regent-street	3½ P.M.
	Civil Engineers—25, Great George-street	8 P.M.
WEDNESDAY	Society of Arts—Adelphi	8½ P.M.
	Microscopical—21, Regent-street	7 P.M.
THURSDAY	Royal—Somerset-house	8 P.M.
	Antiquaries—Somerset-house	8 P.M.
FRIDAY	Royal Institution—Albermarle-street	8½ P.M.
	Philological—London Library, 12, St. James's square	8 P.M.
SATURDAY	Royal Botanic—Inner Circle, Regent's Park	3½ P.M.
	Westminster Medical—17, Saville-row	8 P.M.

GEOLOGICAL SOCIETY.

MARCH 13.—Sir R. I. MURCHISON (President) in the chair.

A paper on the Crystalline Rocks of Nova Scotia having been read, the following was submitted:—

ON THE STRUCTURE OF THE CRYSTALLINE ROCKS OF THE ANDES.

THE CLEAVAGE PLANES, AND THEIR EFFECT ON THE SUPERINCUMBENT SEDIMENTARY BEDS.

BY EVAN HOPKINS, F.G.S.

The author commenced by stating that, it is a well-known fact to those who have traversed large areas of uncovered crystalline rocks, that they universally present a structure more or less vertical. This is observed in Scotland and Ireland, and in many places on the continent, from Norway to the shores of Africa. In North America, the diversified edges of the crystalline series may be traced for many miles, and the whole country has the same structural *bearing* as that of Europe—viz.: north-east. Wherever argillaceous sedimentary beds have been deposited on crystalline rocks, having the above vertical structure strongly developed, the latter, by that slow chemical action, which is constantly at work within them, will, in the course of time, obliterate the seams of deposition, and cleave the beds in conformity to the angular position of the primary structure, and the disposition of the crystals in the crystalline base; and these cleavage planes will pass through mountains of undulated beds, and preserve throughout the various contorted seams the geometrical parallelism of the structure of the parent granitic rock below, and plainly showing the effect of a polar crystalline force acting gradually and insensibly on the whole mass in one given direction. Many thousand square miles of this vertical structure may be seen in South America, and in magnificent sections, thousands of feet deep, exhibiting a great variety of colours, crystallisations, and transitions of the primary series, as observed on reference to the sections.

The accompanying sections have been carefully made from a very laborious survey performed during many years (geologically, mineralogically, barometrically, and trigonometrically), not alone confined to the surface, but are also the result of very extensive subterranean explorations in various parts of the Andes. The first section intersects the three branches of the Cordilleras, in latitude 5° 10′ north from the Paramo of Chingasá, to the head of the River Atrato, and passes through the silver mines of Mariquita, and the gold mines of Supia, and many other points of great practical interest. The second section crosses the central Andes, in latitude 4° 20′ north from the plains of the River Meta (a tributary of the Orinoco) to the shores of the Pacific Ocean at Choco, being about 260 geographical miles from east to west, and exhibits at one glance a great variety of rocks, crystalline and sedimentary, and also the gold regions, and the nature of the auriferous deposits. Another section has been made, and the most beautiful of the number, inasmuch as it passes through the emerald mines of Muzo, the varieties of marble, interlaminated with granites, near Nare, and other rocks of great geological interest on the banks of the Rio Negro, in Antioquia, in latitude 7° north.

It would occupy too much time to enter into the details of the innumerable transitions in the granites and porphyries, and their various hues and striped appearance; therefore, it is simply stated, it is presumed, in general terms, that the great Cordilleras are formed of immense varieties of granites, gneiss, schists, hornblende, chloritic slates, porphyries, &c., as coloured and noted in the respective sections; and these rocks alternate with each other in great meridional bands, which in ridges frequently present the appearance of a radiated structure, and under the plains more or less vertical. The bearing of the cleavage planes of the structure is quite independent of the direction of the ridges, secondary chains, or the sinuosity of the valleys; they pass for hundreds—indeed, it may be said, thousands—of miles, in a geometrical order, through all the superficial undulations, without deviation, on an average bearing of about 30° north-east. This uniformity of bearing causes the prevalence of this strike in the older sedimentary rocks, which have been altered and cleaved by the primary slate, as seen in Wales and the roofing slate districts of the continent. On reference to the sections, it will be seen that the crystalline rocks follow no particular order in the alternation, as commonly supposed; on the contrary, we find only granites and gneiss for miles; and again, only schist, quartz, gneiss, &c., interchanging. However, there is one general order in the compound, both vertically and longitudinally—namely, *each variety of schist depends on its crystalline parent below.* The whole of the crystalline rocks, especially the micaceous variety, pass insensibly from the crystalline to the laminated structure, at an oblique angle, varying from 10° to 40° from below, upwards, towards the north. For instance, we have, first, the granitic base, in which the crystals are somewhat confusedly mixed; these gradually become arranged upwards into parallel lines, and the rock is then called gneiss; by degrees the felspar is decomposed, and the mass becomes schistose, having a striated and smooth subdivision, with veins enclosed of the predominating element of the compound below, as exhibited in various parts of the sections; and such is the general character of the primary structure of the Andes. In those planes of cleavage, the crystals are elongated; and, when they pass through fossiliferous rocks, the fossils are also subject to the same elongated action.

There are many beds of sandstones, limestones, &c., covering the above, especially on the eastern chain. The carboniferous formation of Bogotá is very extensive, and is at a very high elevation—8872 ft. above the level of the sea. Some of the fossils were presented to the Society in 1843, and described by Professor Forbes in 1844. The flanks are much broken, contorted, and cleaved by the primary, and many hornblendic and quartz veins intrude from below into them. This effect may be seen of the crystalline rocks, in altering and cleaving mud and clay in old mines, and also in compact clay-soil in contact with schistose rocks, plainly showing that this action is constant. Mr. Hopkins further said that the sections having been carefully made, exhibit the characteristic phenomena in details, and which are applicable to similar rocks in other parts of the world, he requested reference to them for an ocular demonstration of what he had briefly attempted to describe. Since making the first survey on the Andes, he had had the opportunity of making similar investigations in many other parts; and subsequently to his last survey, had geologically and topographically surveyed the whole Isthmus of Panama, and also many parts of Prussia, and other places on this side of the Atlantic, and lately in the clay-slate districts of Wales; and the whole, without exception, present similar order of structure, and transition of the primary base, and the effect of the crystalline planes on the sedimentary beds, obliterating and cleaving the seams in geometrical order, as observed in the Andes.

In conclusion, it was stated that the knowledge of the above phenomena of order, and the electro-chemical influence of the same going on within the compound, enables him to predict any questions connected with mining with a degree of certainty hitherto unknown in this important branch of our industry. Besides, mining, without the knowledge of this important subject, the progress of geological dynamics, must be slow and very imperfect, as it is, truly, the key by which we obtain a clue of the cause of the great changes which have, and do, take place on the surface of our globe without disturbing the human race. These electro-chemical agents are still silently at work—dissolving, re-composing, and cleaving within the crystalline film; and sedimentary in contact, perpetually modifying the compound, and rendering it suitable to our wants during all ages of transformation; constantly providing inexhaustable stores of mineral wealth for successive generations. These variations of the surface, produced by electro-polar crystallizing forces, which are more universal, more powerful, and as constant as the upward force of the growth of vegetation, cause changes which, although insensible during the age of man, accumulate and become apparent in periods of time.

Mr. Hopkins concluded by impressing the necessity of studying the physics of the terrestrial world *as they now exist*, and less of the assumed forces, and there was no doubt but that geological science would soon take its right and elevated position—that of the sublime in magnitude, usefulness, and moral good.

Considerable interest was excited, and the meeting was numerously attended, by those members who take an active interest in the principles of geology advanced by Mr. Hopkins, and the demonstration which his elaborate and instructive plans and sections present; that gentleman having on the present occasion prepared several, ranging over an extent of 260 miles east and west, being the result of his personal investigations, and were executed in a manner which elicited from the president and the meeting generally expressions of approbation.

The paper was well received—the report of the discussion we must defer until a future Number, merely observing that the sections illustrative were on an enlarged scale; and although it must be admitted on ordinary occasions the time required for such demonstration cannot be afforded, yet the example thus set we hope will be followed, where opportunity presents, as affording encouragement in the promulgation of knowledge connected with geological studies, as well as mineralogical enquiries. It is pleasing to find so much industry observed, and attention directed, to a subject which, while it is most instructive in advancing science, has a claim to our first consideration, in a practical point of view, with relation to mining industry.

INSTITUTION OF CIVIL ENGINEERS.

MARCH 12.—WILLIAM CUBITT, Esq. (President), in the Chair.

It was announced from the chair, that copies of the ground plan of the intended site in Hyde Park, and of instructions for preparing designs, of the buildings for the Grand Exhibition of 1851, had been presented to the Institution, and that, on application to the secretary, duplicates of these documents would be forwarded to any of the members, who intended to devote their attention to the consideration of this question.

The paper read was, "On Tubular Girder Bridges," by Mr. Wm. Fairbairn, M. Inst. C.E. The author commenced by stating, that the chief points to be taken into consideration were:—First, the application of a given formula, for computing their strength; second, the excess of strength that should be given, over the greatest load that could be brought upon the bridge; and, third, the effects of impact, with the best mode of testing the strength, and proving the security of the bridge.

In the first place, it had been determined by experiments that, in order to balance the two resisting forces of tension and compression, in a wrought-iron tubular girder, having a cellular top, the sectional area of the bottom should be to the sectional area of the top, as 11 to 12; and that until this proportion existed, the usual formula could not be applied; this formula was, that the breaking weight was equal to the total area, multiplied into the depth, and into a constant (80), and divided by the length of the girder $\left(w = \frac{a\,d\,c}{l}\right)$

Considering the particular case of the Torksey Bridge, the mean sectional areas of the top and the bottom, being respectively 51·08 square inches, and 54·93 square inches, the latter was in excess of strength over the former, so that a reduction of the area of the bottom from 54·93 to 46·76 square inches might have been made with propriety, and would have been in conformity with the formula. By calculation, the ultimate strength of the bridge was found to be 1152 tons, whilst the greatest total load, including the weight of the girders, &c., was only 372 tons; this gave a strength, greater than the heaviest rolling load that could be brought on the bridge, in the proportion of nearly five to one. Although, therefore, the proportion of the girders was not exactly that which the author recommended, he considered that "they were, nevertheless, sufficient to render the bridge perfectly secure." This conclusion was arrived at without taking into consideration the amount of additional strength derived from the continuity of the girders across the central pier.

The exact proportions recommended were given in two tables, extending respectively to spans of 150 ft., and of 300 ft. The depths of the girders of the first-class were taken at one-thirteenth of the span, and those of the second-class at one-fifteenth of the span. The author then investigated the effects of impact at different velocities. It did not appear that experiment established the fact of increased deflection at high velocities, for in several experiments on a large scale, he had found the deflection as nearly as possible the same at all velocities. He concluded by recommending that the tests to be applied should never exceed the greatest load the bridge was intended to bear.

In the opening of the discussion by Mr. Fowler, Mr. Bidder, and Mr. Eaton Hodgkinson, it was remarked, that satisfactory as it was to have the confirmation of Mr. Fairbairn's authority, for the perfect safety of the bridge for all purposes of traffic, it would have been desirable, that he should have extended his calculations a little further, into the question of the increased strength derived from the continuity of the girder across the central pier, which augmented the total strength fully one-fourth. It was also argued, that the excessive proportion of the bottom of the girder, although not an economical disposition of material, was in itself an important addition to the strength of the girder. The definite proportions assigned in the paper for girders were disputed, and the attempt to assign empirical rules for the practice of engineers, in structures of this novel character, was earnestly deprecated. It was important also to remember, that the large proportion of the bottom of the beam brought into action a corresponding quantity of the upper part of the side plates, in aid of the top. Thus it appeared, that if the subject had been pursued further, the proportion of five to one, by which the proportional strength of the beam, over the rolling load, was represented, would have been, from various causes, materially increased. It was announced that the discussion would be continued at the next meeting, of Tuesday, March 19.

ASHBURTON AND SOUTH DEVON GEOLOGICAL AND MINERALOGICAL SOCIETY.—The second general meeting of this institution was held at the London Inn, Ashburton, on Monday, the 11th inst.—Rev. JOHN TEMPLER in the chair.—The minutes of the preceding meeting were read, as also several communications from parties, who expressed their anxiety as regards the progress of the society, but whose avocations prevented their attendance.—The rules and regulations submitted by the council at the meeting held antecedent, were approved.—The hon. secretaries reported that arrangements had been made for the future meetings of the association, rooms having been taken for that purpose, affording facilities for meeeings of the members, as also the formation of a museum and library.—A list of additional members was submitted, making the present number nearly 100.—A vote of thanks having been passed to the chairman, the meeting adjourned.

THE VICTORIA DOCK COMPANY.—Mr. J. M. Rendell, engineer, appointed by the Lords Commissioners of the Admiralty, under the Act to make preliminary inquiries into applications for local Acts, attended at the Blackwall Hotel, Blackwall, on Tuesday last, for the purpose of investigating and examining the plans of the Victoria Dock Company, the promoters of which propose to construct docks, for the admission of colliers, in the marshes in the parish of West Ham, Essex, above North Woolwich, upon a site which will comprise about 270 acres. Mr. Peto, M.P., Mr. Kinnaird (the director), Mr. Bidder (the engineer of the company), with Mr. Parsons (the solicitor), were present to support the undertaking. Some objections having been made on the part of the Board of Ordnance and the Commissioners of the Essex Levels, Mr. Parsons observed, that clauses would be inserted in the bill to protect the interests of the Government and the Commissioners. The plans of the company would improve, and not obstruct, the navigation of the river, as a large number of vessels which impede the traffic and tidal course of the river would be removed. Mr. Rendell (on Mr. Parsons concluding) adjourned the court, and took a survey of the site for the intended docks.

ENCOURAGEMENT OF EMIGRATION AND COLONIZATION.—It is with much pleasure we notice the provisional registration of a company under the title of the Universal Emigration and Colonization Company, embracing also a principle of freehold and life assurance on the most approved arrangement, a prospectus of which appears in our advertising columns. This company is to be incorporated by Act of Parliament, or Royal Charter, with a preliminary capital of 50,000*l.*, in 10,000 shares, of 5*l.* each, with power to increase to 250,000*l.*, reserving the right, in the charter, to further augment it to 1,000,000*l.*; and, judging from the list of names connected as trustees, directors, referees for Scotland, Ireland, the members in New York, and the bankers in London, Liverpool, Edinburgh, Glasgow, and Dublin, there can be no doubt of its *bonâ fide* and legitimate character, and, when in operation, will establish a system of emigration on rational and sound principles, and secure to the emigrants every possible facility and comfort for proceeding to their destination, and from those impositions and dangers to which they have hitherto been subject. The primary object, indeed, appears to be the promotion of emigration and colonization on a more practical and comprehensive system than hitherto attempted; to effect which large tracts of land will be purchased in the British colonies and the United States, to be divided and sold to the emigrant on the most advantageous terms, undertaking to confer a good and valid title. The purchase money for the fee simple, or the lease, may be paid for by annual instalments, such leases being capable of conversion into freehold at any future period. A general emigration agency will be established in London, where the best information may be obtained as to passage, supplies, implements, necessary seeds, plants, &c., and the security of the health, comfort, and safety of the poorer classes of emigrants will be particularly attended to. The land, for large tracts of which, in the United States and colonies, arrangements have already been made for the purpose, will be let, or sold, in lots suitable to the means of all; and we think intending emigrants will do well to acquire all the information which they can obtain through this company before they take the final step, which probably for ever separates them from their country and connections.

COUNSEL TO INVENTORS.

In the *Mining Journal*, of Feb. 23, there appeared a notice of a work on *Copyright in Design in Art and Manufacture*, from the pen of Mr. T. Turner, of the Middle Temple, which we spoke of as a lucid work on the subject, and one which was likely to prove a useful companion to the lawyer, patentee, and inventor. We have now before us another letter on a similar subject by the same author, who has evidently made himself master of its general principles, under the title of *Counsel to Inventors of Improvements in the Useful Arts.* Mr. Turner, in his preface, states, that the volume is addressed to those who belong to, or connected with, a class at once denoted and reproached by the term, "projector," to whom we owe no small portion of our national prosperity; its aim being first—to offer some suggestions as to the cultivation of the fields of useful invention, and the settlement of new tracts of its territory; and, second, to exhibit the inventor's legal position in the general features of its privileges and conditions. The first of these is generally dealt with under the head of the value of invention, comprising inventors, inventions, the value of, and their natural and artificial limits, with the kind of remuneration which has generally been awarded them; and the second, under the head of property in invention, comprising the rights of inventors, a general and well-classified consideration of patents, and what is patentable, with registration, specifications, and proceedings. In speaking of the moral qualities of an inventor, necessary to insure success, the author says:—

Every object that occurs must be cross-examined, to learn something from it suited to the purpose in hand, every stone turned that may have knowledge under it. Glauber's rule, it is said, was to examine what every one else threw away; and it is obvious that the inventor must succeed by seeing deeper into, or farther off, or more widely, or from a new point of view, the same objects that are visible to all. Sir J. Herschel prettily describes the various parts which iron plays in the thoughts of different men. With the vulgar an incombustible. The chemist not only burns it rapidly, but esteems it, from its affinity to oxygen, a decidedly inflammable element. It is the poet's emblem of rigidity, the engineer's most plastic material; the gaoler values it as an obstruction, the electrician as the freest of communicators. He might have added, the physician, who knows it as a means of invigoration, and the warrior, whom it enables to devastate and destroy, while the astronomer would find its highest interest in its presence in the meteoric stone, to him a sample of the mineralogy of distant world and systems. So Crompton witnessed a process of rolling iron; he saw in it a mode of spinning cotton filaments. Sir R. Seppings observed the framework of a Swiss bridge; he adopted the principle of it into the dockyard, and revolutionized shipbuilding by his diagonal framing, the substitution—viz., of systems of triangles, the strongest rectilinear combination, for the square, which, at every strain of the ship, racked itself to pieces.

There are, throughout the volume, some well-timed allusions to, and extracts from, some of our most popular writers on scientific subjects, such as Babbage, Baines, Ure, Whewell, Faraday, Bentham, and others, which apply most correctly to the subject. Among these, we cannot resist the opportunity of quoting the following from Mr. Babbage's work on Manufactures, of which the author has availed himself; it shows, in a striking point of view the facilities afforded by Nature for the production of all our mechanical results, and how necessary it is for an inventor or a projector to make himself acquainted with the most minute details of the properties of matter to arrive at success:—

With reference to the kinds into which artificial processes are divisible, the most systematic treatment of the subject will be found in Mr. Babbage's work on manufactures. One main distinction separates—1. The power-affording machines; and here one section must be set apart for animals, which (as horse-power) often precede, and are used to measure forces substituted for them; and then the section of inorganic agents will consist of elementals, wind and waterwills, and of automatons, such as those of steam, gunpowder, galvanism, in which we seem to make power, or rather we call it forth from a dormant state, and, unlike Hotspur's assistants, it comes when we call it. In the elemental section we find the force sweeping down the channel, or over the country, and merely arrest it and change its direction by the windmill, sail, or water-wheel.—2. Having from any of these sources an amount of power under control, we expend it on saving us time and trouble; thus, the copper wire supplies no electricity, but conveys it from place to place to write our letters for us. Having got the power into the water-wheel or axis of the sails, the millstones grind by it the corn. Mr. Babbage's third section, arts that economise natural properties, can hardly be co-ordinated with these. Glass-making might be an example of it, in which the rubbish that strews the shore, the sea-weed, Byron's emblem of worthlessness and neglect, aids us to rival Nature's choicest rarities, and with the abundant plenty of the furnace to outvie the crystal of the cave. We shall avail ourselves in part of the same author's more elaborate classification of machines (and tools, which admit of no definite line of demarcation from them), according to the services they render. The heads are—1. Those that store up power, the fly-wheel.—2. Those which regulate it, the steam governor.—3. Economists of material, the saw (at least, in comparison with the hatchet, for it is itself inferior to a blade, which, under machine-power, slices off a veneer, without the loss of a grain of saw-dust).—4. Economists of time, as when hammers are arranged to strike a rapid succession of blows "while the iron is hot." Another proverb is still open to verification by some future engineer, who may set steam-power to turn all the hay "while the sun shines;" science has already, by its barometer, gone far toward telling when it will shine.—5. Clocks, which take in power in the mass, and retail it out in small parcels.—6. Time savers in certain physical changes in bodies, as bleaching, tanning, seasoning timber, &c. It is worth notice, that Nature does not always like to be hurried, and the result exhibits an inferiority to that obtained by leaving to her own pace. Our shoes are not made now with the leather of the good old times; and the same chlorine which so rapidly takes all the stains out of the linen takes out some of the strength. It is not certain that the long years spent on some of our old buildings had not (like the slow growth of a timber tree) a share in giving them durability. A result obtained too great for the mere muscular power of man. Mr. B. instances a Bramah's press, by which, on one occasion, a workman, exerting a pressure equal to 1300 atmospheres, burst a 3-inch thick iron cylinder. This is really only a variety of the first class, both being cases of accumulation.—7. As the human arm falls in power, so human sense unassisted falls in delicacy; hence means of filtering, singeing off the down of lace, and again, magnifying instruments for the eye.—8. Counting machines, inanimate bookkeepers and historians. The most splendid instance is the calculating engine, which, in its fullest development, is due to Mr. Babbage. There are many minor ones, as the gas meter, and the tell-tale, which ensures the fulfilment of the watchman's rounds.—9. Means of identity in copies, and accuracy in all cases. We can only notice briefly the arts of reproduction; printing on surface; moulding on form; copying with variation of size, as the pentagraph; of form, as the lathe (allied to which is the printing cylinder); and of reversed symmetry, as when a right-handed shoe last guides the cutting of its fellow. All these are highly illustrative of the importance of repetition as a ground for employing machinery, and in most of them the cost of the original infinitely exceeds that of a copy. One engraved steel-plate has yielded 80,000 impressions, and the last was perfectly interchangeable with any of its predecessors. If 80,000 copies be insufficient, Perkins's process, or the electrotype art, will copy the metal plate itself, and supply any multiple of 80,000; and where less minute delivery is needful, even this estimate is exceeded. It is said, that in the *Times* office a type does not get its discharge, till it has gone through its exercise, 14,000,000 times.

We cannot further follow our author through his interesting volume, which will be read with interest by every lover of science, and while thousands of facts are collected, which bear immediately on the subject under notice, the whole is contained in only 100 pages—a task at which we think no reader can be wearied. The following is his concluding passage, and is from the *Edinburgh Review*:—

When a principle is fairly studied, inventions are simultaneously made in many places at once; the electric telegraph, screw-propeller, and a host of others, are disputed by a hundred rival claimants; chance, we thus perceive, did not produce those discoveries, nor could it, therefore, have prevented their production; well-directed education will make the creations of the human mind more abundant, as printing has already secured their indestructability.

REGULATION OF RAILWAY TRAFFIC.—The bill proposed by Mr. Ricardo to establish regulations for the interchange and transmission of traffic between and over different railways "in England and Wales," proposes to provide that railway companies may be required to stop passenger trains and to provide them at junctions, under a penalty for not doing so, after one month's due notice from the company requiring such stoppage, of 50*l.* Such companies as are aggrieved, by being required to stop or provide trains, may apply to the Railway Commissioners. Companies are to be bound to attach carriages of other companies at junctions containing a certain number of passengers, and trains arriving after time are to be forwarded at the expense of the company causing such irregularity. Proper accommodation for goods and passengers is to be provided by companies at the junctions. When "two places are connected by two or more railways, passengers are to be booked by the shortest route, and the penalty for booking otherwise than by the shortest line is to be 10*l.*" A discretionary power to relieve companies from this obligation is proposed to be given to the Railway Commissioners. Goods-waggons to be forwarded, if required, and minerals within 12 hours after notice.

INDEPENDENT AUDIT OF RAILWAY ACCOUNTS.—The committee of representatives of various railway companies have finally agreed to the draft of this bill, which will soon be published as an authorised document. The bill contains very stringent powers for audit, and increases in many very important particulars the general powers of the shareholders in the election and dismissal of directors, the general constitution of the boards, &c. An executive committee, consisting of the following gentlemen, were appointed to carry the bill through Parliament—namely: for London and North-Western, Mr. Ewart and Mr. James; South-Western, Mr. Baker; Eastern Counties, Mr. Martin; Great Western, Mr. Norris; York, Newcastle, and Berwick, Mr. Douglas; Midland, Mr. Pope; Lancashire and Yorkshire, Mr. Mellor. A deputation from this committee waited on Lord Stanley, to request him to take charge of the bill.

YORK, NEWCASTLE, AND BERWICK RAILWAY.—The Admiralty have given their consent to this company's bill for alteration in levels of Bishop Auckland branch, being satisfied that the proposed crossing of the River Wear is unobjectionable.

SPASMS IN THE STOMACH, FLATULENCY, AND INDIGESTION, CURED BY HOLLOWAY'S PILLS.—Extract of a letter from Mr. Dalwood, of Goodwood, near Sidney, New South Wales, dated Sept. 14, 1849—"To Professor Holloway—Sir: Having had an experimental knowledge of the good effect produced by your valuable pills, I consider it my duty to make it known, that two years ago, my daughter, then 16 years old, had suffered for a long time with cramps in the stomach, flatulency, and indigestion. I tried various remedies without benefit, but a few doses of your wonderful pills have restored her to perfect health, and she is entirely free from any symptoms of her former complaint."—Sold by all vendors of medicines, and at Professor Holloway's establishment, 244, Strand, London.

DUJARDIN'S ELECTRO-MAGNETIC PRINTING TELEGRAPH.

A printing telegraph, invented by Dr. Dujardin, of Lille, France, was tried with success on the Paris and Rouen line in 1846, about a year before Mr. Bain brought out his chemical printing telegraph. Dr. Dujardin's instruments are very little known in England; it is hoped, therefore, that the following description, partly taken from a French work on telegraphs, may be interesting to our readers.

The sending machine, or magneto-machine, used to generate the electric current, is shown in fig. 1. A B C is a powerful permanent magnet, similar to those used on the Eastern Counties, and other lines in England, for ringing the bells; it is supported on three pillars, and is securely screwed to the stand by means of a brass rod and cross bar, F G; L and M are coils of very fine covered copper wire, wound round the poles of the magnet. Two ends of the coils are joined together, and the other two ends are fixed under the terminals, X Y. R S is an armature of soft-iron, placed in front of the poles of the magnet, so as just to clear them; this armature can be made to rotate by means of the driving-wheel, P Q, and the multiplying wheels, N O; the driving wheel has on its circumference eight handles, at equal distances; and the multiplying wheels are so arranged that, for every complete revolution of the driving-wheel, the armature makes four complete revolutions. Therefore, by turning the driving-wheel one-sixteenth of a revolution, the armature will describe one-quarter of a revolution; and one-sixteenth more, or completing one-eighth of the revolution, the armature will be brought on again to the position S R, only the point S will be where the point R was before, and *vice versa*.

Fig. 1.

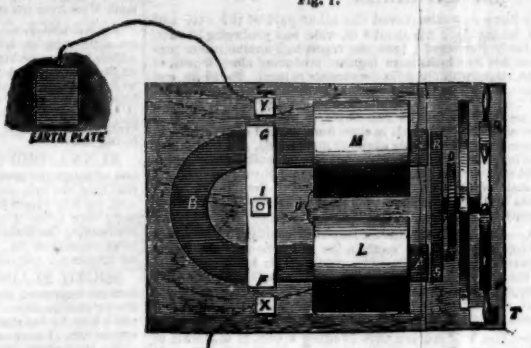
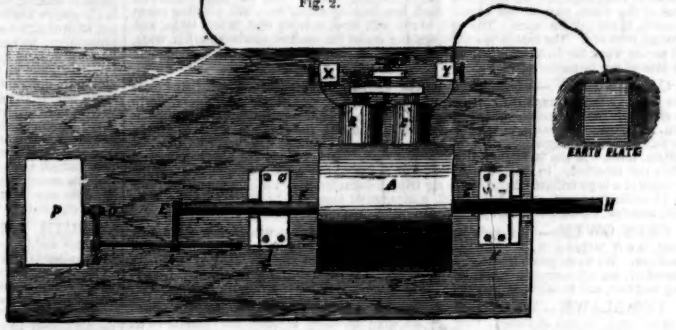


Fig. 2 shows the receiving machine; A is a hollow drum of metal, from 7 to 9 inches in diameter, supported on brass uprights, I K; a slow rotary motion is given to the cylinder by means of the crank O N L, which is turned by clockwork, P; at the same time a lateral motion is also given to the drum, by means of the screw, G H, on its axle. The motion is, in fact, similar to that used by Mr. Bain in his large printing telegraphs. B C is an electro-magnet fixed under the drum; it can be adjusted by means of the regulating screw, D. The ends of the coil wires of the electro-magnet are screwed under the terminals, X Y. In front of the electro-magnet is the pen, which in fig. 2 is concealed by the drum. It consists of a bent piece of silver wire, soldered to a piece of iron wire, mounted and balanced on a pivot, from which hangs also a magnet, by means of a piece of clock-spring. The end of the pen is slightly flattened, and round it is wound a small piece of cotton wool, tied with a fine silk thread. The pen and cotton dip in a cup of ink, and on the drum is stretched the paper on which the message is to be printed. The receiving machine only requires *one* line telegraph wire to connect it to the sending machine, the electric circuit being made complete by earth plates. The connection and the earth plates are shown in *figs.* 1 and 2.

Fig. 2.



When a quarter of a turn is given to the armature R S, an electric current is generated in the coils L M, which current passes along the wire to the coils of the receiving machine B C, and returns to the coils L M, through the earth. But in its passage, this current causes the electro-magnet B C to become a magnet, its *north pole* being opposite the *north pole* of the permanent magnet, and the *south pole* of the first opposite the *south pole* of the second. The magnet H is strongly *repelled*, and the pen is at the same time brought up out of the ink, and strikes against the paper on the drum A, making a dot.

But by continuing to turn R S, it will come again to the position R S, that is, longways in front of the magnet A B C; an electric current is then again generated in the coils L M, but in a direction reverse to the first, the *north pole* of the electro-magnet B C being now opposite the *south pole* of the magnet H, and the *south pole* of the first opposite the *north pole* of the second. The magnet H is *attracted* by the electro-magnet, and causes the pen to fall back into the ink.

By turning the driving wheel P Q one-eighth, we have seen that the armature R S describes half a revolution, and therefore produces the above two currents. Therefore, by turning P Q one-eighth, or the distance from one spoke to the other, a dot is made on the paper; by turning it five spokes, five dots are made, and so on.

The drum having, as described, a lateral as well as rotary motion, the message is printed in a spiral on the paper; but if preferred, the message could be printed on a long slip of paper, as in Bain's Telegraph.

With the exception of the vowels, the letters are composed of two groups of dots separated by a short blank space, as will be seen below:—

DUJARDIN'S ALPHABET.

E .	R . . .	H	F . . . .
I . .	P	L	V . . . . .
O . . .	Q	M	X . . . . .
A	N . . .	G	W . . . . .
U	D . . .	J	Y . . . . .
S . . .	C	K	Z . . . . .
T . .	B		

On the left of the driving wheel is placed a small cushion of Indian rubber, T, which is of great use in working the machine: for example, suppose the sender wants to give the letter *R*, he places his left hand on spoke 2, and his right hand on spoke 5; he then turns the wheel rapidly from right to left; but his left hand striking against the cushion, causes the wheel to stop for a space of time scarcely perceptible, but sufficient to produce the blank between the first dot and the last three, the drum A of the receiving machine continuing to revolve during that time. But the sender takes off his left hand the instant it strikes the cushion, and continues to turn the wheel round with his right hand, till it is in its turn stopped by the cushion, after having produced the three dots.

Whilst the sender is placing his hands on the driving-wheel at the proper distances to make the next letter, the drum A has turned round sufficiently to leave the greater space required between the letter he has just printed, and the one he is about to send. A still greater space must be left between the words. With a little practice great speed can be acquired in the working of the sending machine. A rate of about 90 words a minute can be easily obtained. Dujardin's telegraph has been tried in a circuit of 400 miles, and although it was raining hard at the time, marks were distinctly printed on the paper. It may be seen at work among Mr. Whishaw's collection, John-street, Adelphi.—*Mechanics' Magazine.*

VALUABLE DISCOVERY.—A lead mine of rare value has just been discovered in the neighbourhood of Gort, which contains a larger amount of silver ore than the rich South American mines. The mineral wealth of Ireland is unlimited; yet, with one or two exceptions, no miner's pick disturbs the glittering ore in the bed where it has been lying untouched since the twilight of creation. The following letter, from a highly respectable correspondent, we have just received, giving us an account of this important discovery, which promises to transform the neat little village of Gort into a regular El Dorado, where, we trust, silver seekers will be found as thick as on the banks of the Sacramento, unless Government bring the royal prerogative into requisition, and seize the treasure as the goods and chattels of the Crown, by way of showing us the blessing enjoyed under monarchical governments. Here is the letter:—"Considerable excitement prevails in the neighbourhood of Gort by the discovery of extensive lead mines at Caherglissane, containing a larger per centage of silver than the celebrated mines in South America, and far exceeding anything at present known in her Majesty's British dominions. The quantity of ore raised last week by that enterprising and energetic gentleman, Wm. Collett, far surpassed anything before experienced in Ireland."—*Galway Vindicator.*

THE PENINSULAR AND ORIENTAL STEAMERS.—The directors of the Peninsular and Oriental Steam Navigation Company have decided on sailing their ships on temperance principles, and with that view are making the necessary arrangements with regard to the allowances of spirits and wine to be shipped as requisites for medical purposes. It is understood that this new arrangement on the part of the company commenced with the steamer *Jupiter*, on the 27th ult., but that it is intended to apply only so far as the crews of the several vessels are concerned, and not to interfere in any way with reference to the passengers. The crews will be allowed in money more than the cost of the spirits hitherto supplied to them.

ON TITANIUM.

BY PROF. WÖHLER.

The beautiful copper-coloured crystals of titanium, the formation of which have been so often observed in the blast iron furnaces, are not that which we have hitherto considered them; they are not a simple but a compound body. They consist of a combination of cyanide of titanium with nitride of titanium, composed, according to the formula, $Ti\,C_2\,N + 3\,Ti_3\,N$, and contain, in 100 parts, titanium, 78·00; nitrogen, 18·11; carbon, 3·89—that is, they consist of cyanide of titanium, 16·21; nitride of titanium, 83·72.

The treatise laid before the Göttingen Society contains the details of the manipulation used in the analysis, and the proofs for assuming this composition. Here the author only communicates the behaviour which led to the detection of the carbon and nitrogen. When these cubic crystals are heated in dry chlorine gas, liquid chloride of titanium is produced; at the same time, a crystalline volatile yellow substance sublimes in considerable quantity. This substance is a compound of chloride of titanium with chloride of cyanogen, which can be directly and easily produced from the two chlorides. At the end of the operation, about 1 per cent. of residue remains behind, consisting of graphite in fine scales. This is, however, an accidental impurity, and exact experiments have shown that this graphite plays no part whatever in the formation of the cyanogen. When these crystals are powdered, mixed with hydrate of potash, and fused, ammonia is evolved, and titanate of potash is formed. When the crystals are heated to redness in a porcelain tube, and the vapour of water in a continuous stream is passed over them, a considerable quantity of hydrogen gas is set free, as observed by Regnault; but there is also, at the same time, a disengagement of ammonia and hydro-cyanic acid. If this experiment be made with the crystals in their natural state (not powdered), the titanic acid produced maintains the form of rounded cubes; but under a magnifying power of 300 diameters they have the appearance of an aggregate of crystals, the greater part of which present themselves in an entire form; and, what is most remarkable, this form is identical with that of the mineral *anatose*—that is, they are pointed octahedrons, with a square base, possessing a strong lustre, and all the peculiarities belonging to this mineral. The cubes, when reduced to powder, have, moreover, the remarkable property, if mixed with oxide of copper, lead, or mercury, and heated, of emitting a lively sparkling flame, and reducing the oxides of these metals. This behaviour was taken advantage of for determining the proportion of carbon in them; the heat evolved is so intense and instantaneous, that even copper runs into a globule in the glass tube. With regard to the formation of the crystals in the smelting furnace, the writer believes there can be no doubt that it stands in intimate connection with the formation of cyanide of potassium, which has been so often observed in these furnaces; some experiments which he undertook to make this, if possible, more clear, fully confirm the supposition. A mixture of ferro-cyanide of potassium and titanic acid was exposed in a well-closed crucible for an hour, to a heat in which nickel would melt. The result was a brown unfused mass, which, under a magnifying power of 300 diameters, presented, besides the particles of metallic iron throughout the whole mass, a network of copper-coloured, strongly metallic, shining, short prisms, which, as indicated by the colour, are composed of the same substance as the cubic crystals. After removing the iron by means of hydrochloric acid, these remained mixed with carbon, and exhibited all the properties belonging to the cubic crystals. The titanium used in all these experiments was produced at the Ruebeland Smelting-Furnace, in the Hartz, where lately a mass of titanium has been found, estimated at 80 lbs. (Hanover) weight. The author has not had an opportunity of examining the crystals from other furnaces, but there can be scarcely a doubt that all are perfectly identical in composition.

Nitrade of Titanium.—As long as the cubic crystals of titanium were considered to be pure titanium, it was, from their similarity of colour, a pardonable fault to regard as the true metal the copper-coloured substance first produced, by H. Rose, from the double chloride of titanium and ammonium, by subjecting the same to the action of heat in gaseous ammonia. But this latter substance is likewise not that which we believed it to be, but a nitride of titanium, composed according to the formula $Ti_3\,N_2$, or more probably $Ti_6\,N_4$, that is, $3\,Ti\,N + Ti_3\,N_1$, and contains nearly 28 per cent. of nitrogen; also, on more accurate comparison, a difference in the colour may be perceived, this latter compound being much redder than the cubic crystals, which have a tint of yellow; 100 parts gave, by combustion, only 120, whereas, if pure titanium, they should yield 166 parts. When fused with hydrate of potash, gaseous ammonia was abundantly evolved. This is not the only isolated combination of titanium and nitrogen that can be produced; the author has found that two other compounds exist. All these compounds exhibit the same remarkable phenomena as the cubic crystals (viz.: under a lively evolution of flame, they are oxidised, and the metallic oxides reduced), when powdered and mixed with the oxides of the easily reducible metals, and subjected to the influence of heat. All these compounds can sustain a temperature at least equal to that in which silver would melt, without undergoing decomposition. All give, when fused with hydrate of potash, gaseous ammonia. The nitride of titanium, Ti N, is produced when titanic acid is subjected to a strong heat in a stream of gaseous ammonia, its powder is of a dark violet colour, with a copper-coloured tint; in small pieces it possesses a violet copper colour and metallic lustre. The nitride of titanium, $Ti_3\,N_2$, or more probably $2\,Ti\,N + T_3\,N$, is produced when Rose's titanium is submitted to the action of a stream of hydrogen at a strong red heat, whereby the nitrogen which it gives off is carried away in the form of ammonia; it possesses a metallic lustre, and a brassy or almost gold-yellow colour. This compound is obtained (impregnated, however, with carbon) when titanic acid is heated to redness in a stream of cyanogen gas, or in the vapour of hydro-cyanic acid. Here, however, it must be remarked that cyanide of titanium is not formed.

The author can also reply to the question—What is the character of pure titanium? This substance was first observed by Berzelius; it was not, however, closely examined by him; it is that body which is produced by heating the double fluoride of potassium, and titanium with potassium. The author prepared it in a covered platinum crucible; the reduction was accompanied by a lively evolution of flame. After washing and separation by water, pure titanium remains behind, as a dark green, uncrystalline, and tolerably heavy powder. Even after being subjected to pressure, one cannot discern a shade of colour approaching that of copper, and under the microscope it appeared as a cemented mass, having the colour and lustre of iron. If heated in contact with the air, it burns with much splendour; sprinkled into a flame, it burns at a considerable distance above its point, with a splendour resembling a discharge of the electric fluid. Its comportment in chlorine gas is very similar, requiring also, however, the aid of heat; mixed with minium and heated, it burns with such an intense evolution of caloric, that the mass is thrown out with a report. Titanium possesses the property of decomposing water; at the temperature of 100° C. (212° F.) in pure water, hydrogen gas begins to be evolved, and in warm hydrochloric acid it is dissolved, with a brisk disengagement of hydrogen. Ammonia throws down from the solution a black oxide; if the liquid be then warmed, a disengagement of hydrogen takes place, the precipitate becomes first blue, and is afterwards transformed into white titanic acid. The author has the intention of extending his experiments on the compounds of nitrogen to the other substances nearly allied to titanium—viz., to silicium and boron, in the hope of increasing our knowledge respecting the nitrides of the metals, for the discovery of which we have to thank Shroetter, and also in the hope of obtaining something definite from the compounds discovered by Balmain.

TREATIES OF COMMERCE AND PATENT LAWS.—No. IV.

We now bring forward an objection to the practice of granting letters patent, advanced by those who conceive it to be a fault in the present system, that any impediment should exist to its fullest development, and that, consequently, it ought to be extended as far as possible, which it would be, by materially reducing *the expense* of procuring this FAVOUR from the Crown. We cannot, for ourselves, concur in this objection; it would only tend to make bad worse, as we shall presently endeavour to show. On the subject of expense, however, we have one serious, and, in our opinion, an unanswerable proposal to make, which is, that whatever the cost of obtaining letters patent should be, it ought to go into the public treasury, as it formerly did, in augmentation of the lawful revenue of the Crown. Instead of this, *four-fifths of the sum* exacted for a patent is paid, not to the public, but to its officers! who have already large incomes, without this *very considerable* and most improper addition. The cost of a patent (or, rather, *the three* patents for the same thing, and within the same jurisdiction) is, in round figures, 300*l.*; of this, little more than 60*l.* (the stamp duty) is paid into the public Exchequer! Supposing, therefore, one thousand patents to be granted in one year, no less an amount than the enormous sum of TWO HUNDRED AND FORTY THOUSAND POUNDS would be divided *annually* amongst either sinecurists or well-paid public servants; whilst the public would receive the comparatively small sum of only sixty thousand pounds! Surely, therefore, if the remuneration to meritorious inventors is still to continue to be by granting them letters patent, here is an abuse requiring instant removal, without affecting the interest of the parties immediately concerned; but, on the contrary, depriving those only of its profits who have no pretence whatever to enjoy them, and saving to the public, annually, a sum of money by no means inconsiderable. A division of a tax, in the proportion of *eighty per cent. to sinecurists, or well-paid public servants, and twenty per cent. to the public*, is an abuse which might *once* have escaped detection, and, if detected, correction; but we think, since we have exposed this glaring and monstrous inconsistency, it cannot any longer disgrace the practice of our present patent law, or be permitted to be the means of depriving the public of so large a proportion of a tax, which now finds its way into the pockets of those who have not the shadow of a pretence for receiving it.

We will now proceed to enquire as to the expediency of reducing the cost of letters patent to a small sum, or, in other words, whether it should be such as to deter, or to encourage, the demand on the part of the inventors for this species of private, or individual, monopoly? It has already been shown, in a former article, that the number of patents at present existing may be computed at 5000; it would seem, therefore, taking the average cost to be 300*l.* for a full patent, either that this sum really offers no impediment to inventors in general, or else, that in proportion as we reduce the cost, so would be increased the number of inventions—for example, if the cost of a patent is 300*l.*, and 5000 are applied for at this rate, reduce the amount, say, for instance, to that of an American patent—viz., to 6*l.* 10s.—and the number of *inventions* would be not less than *two hundred and thirty thousand!* Now, admitting, to its full extent, the inventive genius of the present age, taking, of course, a proper share of it to ourselves—nay, more, allowing that we have discarded *everything* that is *old* as good for nothing, and that everything now-a-days is *new*—we are as completely at a loss to imagine *the trades and professions* at present known that could possibly absorb such a vast number of inventions, as we are to conceive *the names* of the new ones, which must otherwise be added to those to which we have hitherto been so unfortunately confined. But, instead of looking to such a result as would follow from the mere figures we have given, we do think that, viewing the actual number of patents that are annually applied for, and which is still increasing, that the sum at present demanded does not, in fact, operate as a check to inventors, or as any discouragement or real impediment in the path of inventors; and, we hesitate not to say further that, *if patents are to be granted as a matter of course*, nothing could more tend to the injury of patentees themselves than increasing the facility by which they may be obtained. So long as the *present system* prevails, *the high price* of a patent must act, in some degree, in favour of the patentee, as preventing infringements, and, consequently, renders it less frequently necessary to resort to the injurious and expensive process of appealing to the courts of law. Even now, notwithstanding the expense, many patents are granted, which are either direct infringements of our own, or mere importations and copies of foreign inventions, or only slight and evasive alterations of one or the other. Increase, therefore, the facility by which patents are granted, and you clearly increase the number of these intruders, to the injury of original and *bonâ fide* inventors. At present, a person either supposes that he is, or *may know* that he is, in truth not entitled to a patent. He applies for one, nevertheless, in either case. The expense, however, may deter him; but take away this impediment, and he then can *speculate* upon the chance, not of detection, but that no one will choose to run the risk, and incur the *certain* expense, of a law suit—the latter being well known to be, by every prudent man, as it most assuredly is by every poor one, a course which the former will not, and the latter cannot, adopt; so that here even the boasted *remedy* of those who advocate the present absurb mode of granting letters patent, *as a matter of course*, is, in effect, either a complete farce, or else a dead letter. By lessening the cost of letters patent you must inevitably increase the great disadvantages under which the *bonâ fide* inventor now finds himself, and the more likely will he be oftener called upon, either to resort to law, or else to submit to an admitted and, very probably, a *premeditated* piracy. We do not, consequently, advocate cheap patents; like many other so-called cheap things, they would turn out, in the end, to be the dearest, and so increase, rather then lessen, the evil complained of. But we have now only been considering the effects of cheap patents, as they would affect the patentees themselves. We think, however, there is another view of the subject not less deserving of attention. It has unfortunately become notorious that, at the present day, we are all far too much inclined to seek for the short, uncertain, and very frequently *ruinous path* to sudden and easily-acquired fortune. Why, therefore, should an additional temptation to acquire wealth without labour be thrown in the way of the public, too prone already, as we all know, to avail itself of every such opportunity, and certainly the more excusable, when it does so under the sanction and by the authority of the law, which ought always to be exerted in restraining it? We say, therefore, that if patent rights are rendered cheap, the evil we have alluded to will be increased; for we know that *speculations* in patents are extensively carried on, even now. We know that numerous incomes, *and large ones too*, are derived from what are termed royalties—not paid by the licensee or licensees, to a *bonâ fide* patentee. but paid by one patentee to another, and in some cases *to several*, for one and the same patent—so that each of the speculators may receive their share of the joint speculation, it being *their* interest to divide their profits, rather than incur the expense of a law suit, which would in all probability destroy the entire

monopoly itself, and throw open to the public all the *improvements*, the greater part of which would not be considered as infringements upon the first patent. Letters patent, therefore, it seems are in many cases the means of speculation as much so as any other, and the temptation to embark in them will evidently be greater in proportion as the facility of obtaining grants of this description is increased. In the proposed alteration, we can only see additional insecurity to the honest and meritorious patentee, a larger amount of *fees* collected for the benefit of those who are not entitled to them—more frequent visits to "my lawyer," and to "your lawyer"—in other words, only a further extension of the present absurd practice of granting letters patent, as a matter of course, and the necessary consequence of still more uncertainty, litigation, and expense, to both patentees and the public.

We shall conclude our observations on this important subject next week.

BANWEN IRON COMPANY—WINDING-UP.

On Wednesday, Master Kindersly, who is charged with the winding-up of this company, proceeded to settle the list of contributories. It was divided into two classes—those who did object, and those who did not, to being placed on the list; the latter, as might be expected, forming a very small minority, and the names were arranged alphabetically. Mr. Bristoe appeared on behalf of the official manager, and several of those who raised objections did so in person. A number of names having been called to which there was no response, that of George Alexander Fullerton was announced, to which another party named Fullerton answered. He said he appeared on behalf of the executors of G. A. Fullerton; their names were John Martin, and Capt. Brenton, R.N., Southampton, and they did not object being placed on the list as executors only. In this case, if the executors can show that they have no assets, all responsibility ceases to attach to them in respect of any shares which the testator may have held in the company—that is to say, they will be placed in the same position as the Messrs. Doyle, whose case was recently heard before Vice-Chancellor Knight Bruce, on appeal from Master Farrer. In that case the parties were executors to the will of a testator, who held shares in the St. George Steam Packet Company, but the Master held them both to be personally liable, they having received dividends. The Vice-Chancellor, however, reversed the decision, and placed them as executors only, and the Lord-Chancellor affirmed that decision with costs; and, therefore, the liability of Messrs. Doyle ceased, they having shown that they had no assets.

The name of Thomas Dirpar, of Bradford, represented by the list as holding 50 shares, having been called, his solicitor appeared and handed in an affidavit, in which he stated that he did apply for the 50 shares, but he had never signed the deed, and subsequently abandoned the shares; he had never done any act of acceptance, never attended any meetings of the company, nor undertook to become liable.

Mr. Bristoe wished to know when their shares were allotted?—Mr. Dixon's attorney said he did not know.

The Master said he feared it would be necessary to have Mr. Dixon present; he did not mean to issue a summons for his peremptory attendance, but it would much facilitate his case by attending personally, as no affidavits could so fully and satisfactorily explain his case as a personal examination.—Mr. Dixon's solicitor concurred with the Master, and said he would communicate with him.

John Bicknall, civil engineer, of Wandsworth, 40 shares, objected on the ground that he never applied for the shares. Having been sworn by the Master, he went on to state that a friend of his, named Fowler, since deceased, wrote to him to say that this company would be a good undertaking, and that he should have some shares in it. Mr. Fowler subsequently applied for 50 shares in his (Mr. B.'s) name, and 40 were allotted to him; but he (Mr. B.) never authorised him to do so, and he never received them, or any communication in respect of them, until he received the official manager's notice.—To Mr. Bristoe: This was three or four years ago.

The Master: Have you any document in respect of those shares, or did you ever receive any letter stating that those shares had been declared forfeited?—Mr. Bicknall: I never did, and I have no letter or other document respecting them.

Mr. Sidney Pottinger Harris, secretary to the company, said he did not know Mr. Bicknall, but he must have written him a letter of allotment, as the book shows by the mark opposite each name that letters of allotment had been sent to those who had applied for shares. He (Mr H.) did receive some communication from Mr. Fowler, but not in respect to shares to be allotted to Mr. Bicknall.

The Master: Were any letters sent out stating that certain shares had been forfeited?—Mr. Harris: A meeting of the directors was held, at which a resolution was adopted, to the effect that certain shares should be forfeited.

The Master said he did not think there was any case against Mr. Bicknall, and, therefore, he should exclude his name from the list.

William Barker, Seymour-place, Euston-square, 20 shares.

Mr. Harris said he recollected Mr. Barker applying for the shares.—Mr. Barker said he did apply for them, but he had never signed the deed, or paid any deposit, nor did he receive any letter of allotment; and in a few days after he made the application he wrote a letter withdrawing it.—Name excluded.

John Hackett, of Brompton, 20 shares. He said he applied for the shares in September, 1846. He then handed in an affidavit, setting forth at considerable length the circumstances connected with his case. From that document it appeared, that in reply to his application for the shares he received a letter from the secretary, stating that the shares had been allotted to him, and requesting him to pay the deposit of 2*l.* per share, as the directors were anxious to open two blasts immediately. In answer to that, he wrote to enquire when the Deed of Settlement would be ready for signature, and the reply was that the writer could not say. However, he (Mr. H.) wrote another letter to the secretary soon after, stating that he would have nothing to do with the company, as he had just been compelled to pay a large sum to a party in Liverpool, and that would prevent him taking the shares. That letter was dated the 25th Sept., 1846, and on the 13th October following, he received a letter from the secretary, stating that the company was then completely registered, and requesting him to pay up, if he still wished to continue a shareholder. He heard no more of the matter until the month of March, 1847, when he received a letter, stating that all shares on which the deposit had not been paid would be forfeited; but he had never paid the deposit, and never signed the deed.

The Master said it appeared that those shares had been declared forfeited, and, therefore, Mr. Hackett ought to be excluded. The letter of the secretary said, "if you still wish to continue a shareholder," thereby leaving him an option.

George Evans, Melbourn-terrace, Regent's Park, 250 shares. He said he was willing to admit his liability for 200 shares, but it was distinctly understood that the 50 shares should have been in the name of Mr. Saunders, who was the engineer of the company.

The Master said that this case was somewhat similar to that of the Vale of Neath Brewery, in which the Lord Chancellor had decided that, unless the deed contained a provision to the contrary, the power to disclaim shares under those circumstances could not hold good.

Mr. Bristoe said the deed of this company gave a power to transfer, but not to part with shares in this way.

The Master said he feared Mr. Evans could not get rid of those 50 shares. It was a case which reminded him of another of great hardship, that of the Marylebone Bank. In that case the secretary asked a friend of his to let him put down his name for 100 shares, and to endeavour to distribute them amongst his friends, at the same time assuring him that he would incur no responsibility whatever in respect of them. Well, the friend acceded to the proposition, he allowed his name to be put down for the 100 shares, but he could succeed in disposing of only 30 of them. The consequence was that when the company came to be wound up, the friend was held liable for the 70 remaining shares, which proved most disasterous to him. He (the Master) believed the deed of this company gave no mode of getting rid of the shares except by a regular transfer.

Mr. Harris said, it did not; but he was aware that Mr. Saunders was to have been held liable for the 50 shares—that was the understanding.

The Master said that, in that case, Mr. Evans had better arrange with Mr. Saunders.

Dr. Barnet made a few observations in reference to his case; but we have already published the particulars of it.

Mr. Harris observed, that the company was completely registered in October, 1846, but since then the directors had done nothing whatever; and what was set forth in the deed was only a copy of the prospectus. He (Mr. H.) now wished to say, that he had been given to understand that some observations, or charges, had been made by some person in this court on a former occasion against him, when he was not present. He now begged say to those parties, that he was then ready to meet them, and account for his conduct in every particular.

The Master assured Mr. Harris, that he had not heard any charge made against him. The meeting was then adjourned.

Kilbricken Silver-Lead Mining Company.—At the adjourned attendance for winding-up this company (which we gave at length in our last), Mr. Wryghte, and his solicitor, Mr. H. Harris, reported to Master Richards that a call of 1*l.* per share would be required to defray outstanding liabilities.

Wheal Concord.—The winding-up of the affairs of this company is proceeding before Master Sir Wm. Horne; and Wednesday last, the 13th inst., was the day appointed, by arrangement between all parties, to have the Master's decision as to the legality of the purser and solicitor to the company (Mr. G. W. Snell, of Callington) detaining in his possession, or custody, the books, papers, documents, and accounts relating, or appertaining, to the affairs of the company. The purser claimed 134*l.* as his bill of costs due from the company, and considered himself entitled to detain the books, &c., until the amount was paid. The official manager (Mr. Soulby) objected to such a course being adopted, and it, therefore, came before the Master *pro forma*, when Mr. Speed appeared as counsel for the official manager, and Mr. Dickinson for the purser and solicitor (Mr. G. W. Snell). A long discussion ensued between those learned gentlemen as to the propriety of the Master having any jurisdiction in the matter—the order emanating from the Master, whereas it ought to have been made an order of Court, which question the Master reserved, and the merits of the case was to be gone into. The Master then stated there could not be a question Mr. Snell had a right to detain the books, &c., until his lien, as solicitor, was fully paid and satisfied; but all books, &c., in his possession, as *purser only*, he had no right to, but was bound to deliver them over to the official manager. The counsel for the official manager, however, suggested that he (the official manager) should give an undertaking to pay Mr. Snell's lien on the books, &c., as solicitor, out of the first moneys that might come to his hands, which the Master acceded to; and it was finally arranged that the books be delivered over to the official manager, subject to the payment of the lien, and on that functionary giving the usual undertaking as to the payment of the amount claimed, which was not disputed. This will now enable the official manager to proceed with his duties, and it is to be hoped that he will soon bring this long and protracted affair to a conclusion.

Duisberg Iron-Works Company.—In the Vice-Chancellor's Court, on Saturday, Mr. Swift appeared upon a petition presented in this case, on behalf of a contributor, for winding-up this company under the Act. It was stated that the company had had an office in London, and was established for the purpose of working mines in Westphalia, upon the Cost-book Principle. The order of reference was made, no one appearing to oppose the petition.

Direct Portsmouth and Chichester.—On Wednesday, Master Richards made an order for the delivery up by the solicitors, subject to their lien, of all the books and papers connected with this concern, in order that its affairs may be investigated and wound up under the Act.

Mining Correspondence.

BRITISH MINES.

BARRISTOWN.—We have now discovered the other part of the east and west lode, in the 30 fm. level, taking east; it is about 8 in. wide, and producing 10 cwts. of lead per fm., although so lately discovered. I consider reporting its value rather premature. The western end on this lode looks more regular, producing about 6 cwts. of lead per fm.; it is 18 in. wide, mixed with blende and carbonate of iron. The 30 fm. end west, on new lode, is still poor, and I dare say will continue so for a few fms., till we get away from the east and west lode. The 30 fm. level end east, on new lode, is between the two channels of ground, and very poor. The men employed in sinking the winze in bottom of the 30 fm. level, on new lode, I have put to stope from the end of the winze, as we are so much in want of lead; they have a lode about 20 inches wide, and well mixed with lead; there is nothing of importance cut in the cross-cut driving south from Nangle's shaft, in the adit level, except some gossan branches, containing small veins of lead. I have no doubt but that we shall raise ore enough to pay the cost of the mine in April, provided our present prospects continue. Inclose a small plan of the 30 fm. level workings, that you may more clearly understand our present operations.

BEDFORD UNITED.—The shaftmen have completed casing and dividing down the engine-shaft, and commenced driving south in the 115 fathom level. In the 103 fm. level east, the orey part of the lode is 18 in. wide, yielding from 3 to 4 tons of ore per fm.; we are driving by the side of the 90 fm. level east. In Bray's winze, in this level, the lode is 2 ft. wide, carrying a leader of ore 18 in. wide, and worth about 3½ tons of good ore per fm. We have cut through the capels of the lode in the 70 fm. level, and find the lode so far as it has been cut into (about 12 in.) to be producing good stones of ore.

BODMIN CONSOLS.—You will receive this evening a box of minerals of arseniate and carbonate of lead, such as I never sent from any mine in my life. Nothing can look more promising than this mine in both levels. The wheel is ready, and will be at work next week. As soon as we can sink about 5 fms., your opinion of this mine will be verified, and I feel confident will pay for all your trouble and exertions. Mr. Murray will inspect the mine to-morrow, to see if my opinion agrees with his.

BRYN-ARIAN.—The lode in the engine-shaft, now sinking under the 10 fm. level, is 6 ft. wide, and orey throughout, so that we save the whole of it for dressing. The lode in the 10 fm. level east is 7 feet wide, and much improved since last reported, now yielding 7 or 8 cwts. of ore per fm.; the lode in the same level, driving west, is 5 ft. wide, yielding 15 cwts. of ore per fathom; this end is improving daily, and much better in appearance than anything we have ever had in the level above. The two stopes east and west of the winze, east of the engine-shaft, are looking much as usual, yielding about 15 cwts. of ore per fm. each. The lode in the adit level, driving east, is still large, and spotted with ore. The lode in the shaft, sinking under the shallow adit level, is 6 ft. wide, all saving work for dressing, and yielding about 8 cwts. of ore per fm. We shall sample 20 tons of ore to-morrow.

CALLINGTON.—The ground in the 125 fm. level cross-cut west, towards the lode, continues much the same as last reported. The lode in the 112 fm. level north is about 6 in. wide, producing silver-lead ore; in the 112 fm. level south the lode is about 9 in. wide, opening moderate tribute ground. In sinking the diagonal shaft below the 90 fm. level, our progress is very favourable; another fortnight will bring us near the 100 fm. level. In the 70 fm. level east, on Kelly Bray lode, no lode has been taken down since last reported. In the 112 fathom level north, at the south mine, we are opening ground of a high tribute character. Our tribute department is looking much the same as for some time past. Our last parcel, computed 41 tons, sold to Messrs. Walker, Parker, and Co., realised 18*l.* 15*s.* per ton.

CEFN GWYN.—The lode in the shaft, now sinking under the deep adit level, is 8 ft. wide—6 ft. of which we are carrying for the shaft, being a good mixture of lead ore. We have now nine men at work in this place, as the water is rather quick; therefore, we are carrying the shaft 8 ft. long, so that it will be large enough for a drawing footway, and to take any pitwork required for the effectual development of the mine.

COMBLAWN.—We are getting on very well with the walls of the engine-house; and, by this day week, I expect we shall be ready to heave the cylinder in its place. Although we had a good deal of trouble with the boiler and cylinder, it is all brought on the mine safe without any misfortune. We have the whim and some loose timber to bring home, which I hope to get on the mine by this day week. The masons will, I think, complete the buildings in a fortnight from this time, when we shall immediately commence the erection of the engine.

EAST CROWNDALE.—At the middle shaft the lode is large and productive—worth 20*l.* per fm. In the 28 east the lode is large and tinny, not rich. Our tribute pitches are looking well. We shall get all the tin promised in my last, but I fear not so early by a day or two as promised, in consequence of a scarcity of boys and girls for cleaning the ores.

EAST TAMAR CONSOLS.—The ground and lode in the engine-shaft continues to be very favourable for sinking; and if no alteration occurs, which I do not anticipate, the men will sink 3 fathoms this month. The lode carries a very good branch of lead, and being open, drains all the water from the upper levels, which is a good indication. The 80 fm. level south continues to be easy for driving, and the lode is daily improving; the winze before this end is down to the 80, and the men are now driving south on a good lode. In the south end, in the 70, the lode is yielding tolerably good work; in the end it will yield from 6 to 7 cwts. of lead per fm. In the south end, at the 60, the lode is at present poor; in the north end it is worth 6 cwts. of ore per fm.; in the winze sinking in the bottom of this level there is a very fine lode, and I expect it will be holed to the 70 fm. level in a day or two, when both levels will be well ventilated, and enable us to set two good pitches. Caroline's shaft is holed to the back of the 11 fathom level, below adit, by which a large extent of very good tribute is laid open; the lode is large, very tender, and worth from 6 to 7 cwts. of ore per fm. At Church-lane shaft the water is again below the 26 fm. level, under adit, so that we are able to resume the workings of all the pitches, and to drive the north end. The fine weather has been a great advantage to us in the erection of the steam-engine at Gullett's, and it will soon be completed.

EAST WHEAL GEORGE.—Our surface work is getting on well; the shaft is down 10 ft., and we are now driving from shaft to wheel-pit; at the latter we have six men employed, who will complete their bargain in the course of 10 days, and the lobby is completed to the western end of wheel-pit. The road is in course of forming, and men are employed in quarrying stone required for smiths' shop and wheel-pit, the masons having this day commenced work. The whole of the work, I consider, is going on with spirit, and I think we shall have the shaft down 12 fathoms by the time our engine is in course for working.

ESGAIR LLEE.—In my last report I informed you that one week was likely to be sufficient to ascertain whether the caunter lode is running behind or south of the present level, also south of Morgan's winze; since which we have met with a large clay, or cross, course, which I think has heaved the lode north, and as yet we have not seen the lode east of the heave, but the lode holds good home to the clay, or cross, course. The north lode, in the deep adit, west of Morgan's winze, is still looking very promising, being from 4 to 5 ft. wide, and will yield, on an average, about 20 cwts. of ore per fathom. The lode in the 12 fm. level, west of Morgan's winze, has a very promising appearance, but as we have been only carrying a part of the lode, we have put the men to drive south to prove the whole width and quality of the lode. The caunter lode, in the 12 fm. level east from surface, is improved since my last report, and will at this time yield from 15 to 20 cwts. We have seven men removing rubbish and cutting out the ground for the wheal pit, and by the end of this week we shall be ready for the masons to begin to build the wheal pit.

GARRAS.—The sumpmen have finished dividing down the shaft from the 50 to the 60 fm. level, and have commenced sinking the shaft to a deeper level; the ground appears to be the same (light blue and soft killas), as is to be found in all the upper levels of the mine, wherever the lode has been productive. A communication has been made from the 50 to the 40 fm. level south for ventilation, and the winze has passed through some orey ground, which has been set on tribute. As the lead is dipping south, it will soon be met with in extending the 50 fm. level in that direction. The pitches and other parts of the mine are looking much the same as when last reported on.

HAWKMOOR.—Since our last we have continued sinking the fork below the 30, and have still 4½ feet to sink. The men are now taking down the lode, which is looking better in the western part of the shaft than yet seen; the part eastward has yet to be taken down, but looks equally promising. The lode in the winze eastward, under the 20, is 2½ ft. wide, with a leader of tin 1½ ft. wide, worth from 30*l.* to 40*l.* a fm., and a branch of ore worth from 2 to 3 tons a fm. In every other respect, the mine continues as last reported.

HOLMBUSH.—The lode in the 120 fm. level south is 3½ ft. wide, composed of quartz and lead, worth 5*l.* per fm.; the stopes in the back of the level are not so productive as they were; the ground in the 120 fm. level cross-cut south, towards the flap-jack lode, is not quite so favourable at when last reported on. In driving the 110 fm. level cross-cut west about 2 fms. from the eastern part of the lead lode, we have intersected a branch 14 in. wide, composed of hard spar, prian, and spots of lead; and as there is water issuing from the end beyond it, we shall continue to extend the level a few feet further in that direction, to prove if there be another part or not. The flap-jack lode, in the 100 fm. level, east of the great cross-course, is about 2 ft. wide, producing stones of copper ore, and, from its appearance, I think an improvement will soon take place. The pitches in the back of the level are without material alteration.

HEIGNSTON DOWN CONSOLS.—The lode in the 35 fm. level, east of the eastern cross-cut, is 4 ft. wide altogether, 14 in. of which is good saving work for copper ore. In the middle cross-cut, towards the south lode, the ground is rather harder than when last reported on. The western cross-cut progresses satisfactorily; the winze sinking below this level is without important alteration.

KESWICK.—The ore in the 10 fm. level rise, at Brandley, is poorer, and has in places nipped out. In the 20 fm. level south the ore continues good. When the present stope is done, we intend driving upon a part of the vein which has been missed by the old men, and seems to be the principal part of the vein. In the 20 north there is a little improvement upon last week, but the ground is hard and wet. In the 25 fm. sump the ore continues to improve, and seems to be extending in length. There is no alteration in the 17 fm. level, at Thornthwaite, since last week. In the 17 fm. sump, on vein, we have been stoping to the south, which is poor, on account of water being in the sump; but if the weather continues fair, we will get the water out, and begin to sink again. In the 17 fm. sump, on string, there is a decided improvement during the past week. In the bottom level no alteration.

KINGSETT AND BEDFORD.—I am happy to state that we have an improvement in the end driving south of the rise. Two of the committee of management were at the mine on Monday last, and were much pleased with the splendid stones of lead broken. We shall set the wheel pit, &c., on Saturday.

KIRKCUDBRIGHTSHIRE.—The lode in the 62 end, west of Stewart's, is 4½ ft. wide, with fine stones of ore through it, worth about 5 cwts. of lead to the fathom; the lode in the 62 end, east and west of Keith's, is still unproductive. The lode in the 50 end west is 18 in. wide, with a small quantity of lead in it. We have another cargo of lead ready for shipment.

LAMHEROOE WHEAL MARIA.—Things are improving here; the lode cut in the cross-cut from the engine-shaft is widening as it extends from the cross-course, consisting of a large solid vein, about 9 in. wide, of white mundic and yellow copper, and the quartzose portion of 1 ft. to 18 in. more, interspersed with copper. The vein is most probably connected with a large copper lode. The cross-course, in the same level, will be intersected for lead in the course of a few feet more driving. The warm water proceeding from it is a remarkable fact. I think it must proceed from our great lode to the north, which may be much nearer than we expect; for, on reviewing its course on the surface, its size at so shallow a depth precludes the possibility of determining the underlie. I think it is advisable to sink on its course, if only for a few fathoms.

PEN-Y BANK AND ERGLODD UNITED.—In giving you a short report of these mines, I beg to say that the six men who commenced stoping the bottom of th level on the course of the lode last month have completed 6 fms., and have gained in that length 7 ft. in depth; the lode is now from 5 to 6 ft. wide, and, I believe, yielding about ore enough to pay for stoping. I think we have rose from last month's working 2 tons of ore; the ore of this mine is of a good quality, as it contains 16 or 18 ozs. of silver to the ton of ore. I shall be able to ascertain the exact depth of the old workings in Pen-y-bank Mine from the surface against my next report.

PENZANCE CONSOLS.—The north lode still continues to improve; there are eight men on tribute in one pitch working on a fine lode of tin; there is on the middle lode a good branch of tin; and on the engine lode, and also in the bottom level on Boyns's lode, are good courses of tin. The tribute pitches throughout are looking well. The quantity of tin raised in January was sold last week, amounting to 4 tons 5 cwts. 2 qrs., 11 lbs., realising upwards of 243*l.*; this was raised from only 15 to 18 fms. in depth, and if the lode continues to hold in depth, which, from appearance, there is every encouragement to expect it will, this adventure will be one of great importance in the locality.

RUNNAFORD COOMBE.—The shaftmen are getting on exceedingly well, and although the ground continues very hard, it is somewhat favourable for blasting, so that they can sink about 3 ft. 6 in. per week; and should it continue just as it is at present, we may expect to see the shaft to the 10 in the course of six weeks from this date, more than 7 fms. of which is already sunk; in the 10 fathom level, where we purpose intersecting the main and the north lode, there is not a doubt existing but we may expect large deposits of tin. The steam-engine continues to work well, and it is making about six strokes per minute.

SOUTH PLAIN WOOD.—In driving the last 5 fms. on Nicholson's lode it is much improved, the lode is from 4 to 5 ft. wide, producing mundic and stones of ore of very rich quality. We have no alteration in the deep adit since my last report. Camplin's lode, in the shaft near the river, is from 5 to 6 ft. wide, producing good stones of copper ore. I have taken the six men that were sinking on this lode, and put them to sink a shaft about 35 fms. to the west of the River Dart, to intersect Nicholson's lode. The lode in Todd's shaft is full 4 ft. wide, composed chiefly of gossan, mundic, with an intermixture of peach, and a small proportion of copper ore.

SOUTH WALES MINES.—I beg to inform you the south, or Frongoch, lode, in the shallow level, east and west of the old workings, is looking very promising indeed, being full 12 ft. wide, with a branch of rich ore on each wall, from 2 to 3 in. wide, with veins of ore running through the lode, and will at this time, in the bottom of the level, yield 10 cwts. of ore per fm. The six men in the cross-cut north are getting on as fast as could be expected.

SOUTH TAMAR CONSOLS.—The sumpmen are making satisfactory progress in sinking the engine-shaft; the lode continues to carry a good leader of lead, and is altogether kindly and promising. In the south end, in the 100 fm. level, the lode is not so productive as we anticipated; but still leaves good tribute ground, and will, in all probability, be richer in a few days; in the north end the lode is much improved, and now worth from 6 to 7 cwts. of ore per fm. The lode in the 90 end south is also much improved, and yields rich saving work; the matrix is a mixture of capel and fluor-spar, and quite different from that which we had in the hard bar of ground in the 80; in the south end, in the 80 fm. level, the lode continues to produce from 5 to 6 cwts. of rich silver-lead ore per fm. In the 30 fm. level the lode is 4 ft. wide, composed of capel, with small branches and strings of rich ore thoughout; the pitch in the back of this level produced, last month, 7 tons of ore; and I have had it assayed for lead and silver. The 45 and 60 fm. levels, which we were obliged to suspend clearing for want of air, will now be resumed, as a communication has been effected that ventilates both. Glynn's shaft is down considerably below the 60; and we continue to make good progress in clearing it. The ores raised last month are all dressed; the quantity will be something less than I had calculated; but the quality is better for lead, and very much richer for silver.

SOUTH WHEAL TRELAWNY.—The cistern is made complete, and the lift fixed and properly stayed in the 50 fm. level, and the sinking resumed; the ground in the shaft is still a favourable dark blue killas stratum. The ground in the 50 fm. level cross-cut, west of the shaft, is also very favourable, being a dark blue killas. The ground in the eastern cross-cut, in the same level, is rather softer than it was when last reported on; the bunch of elvan is nearly out of the end, and we hope soon to reach the sparry branch. The quantity of water we have to contend with is just as usual, and we do not expect an increase until the lodes are intersected, which the engine is prepared to meet; for I never saw her in better condition, especially since the lift has been fixed, &c.

SPEARNE CONSOLS.—The engine-shaft is now completed to the 128 fm. level under the adit—in the bottom of which there is a very good lode of tin; the 128 fm. level is extended 2 fms. east and 2 fms. west on the course of the lode, and a good branch of tin in each end. In the 116 fm. level east there is a good course of tin; in the 116 fm. level west, the 60 fm. level east, and the 50 fm. level east, there is good tribute ground. The pitches never looked better than at present. The sampling of tinstuff for part of February, but not completed, is 710 sacks, worth upwards of 622*l.*, equal to 70 tons of tinstuff, worth 8*l.* 10*s.* per ton in tinstuff, as broken from the mine. The mine, on the whole, never presented such an appearance before; and the engine-shaft is just as deep as when the Levant Mine begun to increase her dividends. I may add that, as this mine increases in depth, the lode becomes better and much stronger; and, in the course of two months, we shall again prepare for sinking the engine-shaft to the 140 fathom level.

TAMAR SILVER-LEAD.—In driving south, in the 205 fm. level, the lode is 6 in. wide, composed of spar, capel, and ore. In the 190 end there has been no lode taken down since last reported on. In the 175 end the lode is 2½ ft. wide, 6 in. of which is good work. In the 160 end the lode is 1 foot wide, yielding work of a moderate quality. In the 145 end the lode is 4 foot wide, and passing through profitable ground. At the north mine, the engine-shaft is sunk 5 fms. 5 ft. below the 60 fm. level; in the winze, rising in the back of this level, the lode is 18 in. wide, composed of capel, can, and ore—saving work. In the 70 end, driving north, the lode is 2 feet wide, 6 in. of which is producing good work; in the winze, sinking in the bottom of this level, the lode is 1 ft. wide, and yielding work of a promising character.

TINCROFT.—The lode in the 100 fm. level, driving west of Palmer's shaft, on East Pool lode, is 3 ft. wide, with spots of ore. In the 90 fm. level west the lode is 3 ft. wide, worth 5*l.* per fm. for copper. In the 80 fm. level west the lode is 3½ ft. wide, worth 7*l.* per fm. for copper. In the winze sinking below the 70 fm. level the lode is 2 ft. wide, worth 3*l.* per fm. for copper. In the 36 fm. level, driving west of Stainsby's shaft, the lode is 2 ft. wide, with stones of ore. In the 24 fm. level west the lode is 1 ft. wide, but poor. At North Tincroft, in the engine-shaft, sinking below the 100 fm. level, the lode is 7 ft. wide, worth 35*l.* per fm. for copper; in the 100 fm. level east the lode is 4 ft. wide, worth 13*l.* per fm. for copper; in the west end, in the same level, the lode is 4 ft. wide, worth 18*l.* per fm. for copper. In the 90 fm. level, east of Willoughby's shaft, the lode is 4 ft. wide, worth 12*l.* per fm. for tin and copper; in the winze sinking below this level the lode is 7 ft. wide, worth 22*l.* per fm. for copper; in the 90 fm. level, west of engine-shaft, the lode is 4 ft. wide, worth 30*l.* per fm. for copper; in the winze sinking below this level the lode is 6 ft. wide, worth 18*l.* per fm. for copper; the 90 fm. level, east of engine-shaft, on the north branch, is 1½ ft. wide, worth 3*l.* per fm. for copper; by driving this end about 4 fms. further we shall intersect a cross-course, where we expect an improvement in the lode; in the cross-cut, driving south from the engine-shaft, we have cut the south branch, and find it to be 3 ft. wide, worth 8*l.* per fm. for copper. On Chapple's lode, in the 110 fm. level, east of Cook's Kitchen, the lode is 3 ft. wide, worth 4*l.* per fm. for tin. In the 100 fm. level, east of Downright shaft, the lode is 4 ft. wide, worth 15*l.* per fathom for tin and copper; in the west end, in the same level, the lode is 5 ft. wide, worth 20*l.* per fm. for tin and copper. In the winze sinking below the 90 fm. level the lode is 6 ft. wide, worth 20*l.* per fm. for tin. In the 80 fm. level west the lode is 2 ft. wide, with stones of ore. Grout's lode, cut in the 80 fm. cross-cut, driving north from Chapple's lode, is worth 70*l.* per fm. for copper; we have driven through it 6 feet, but have not reached any north wall; we have in this level six men to drive east, and six men to drive west, and have commenced a cross-cut in the 70 fm. level from Chapple's lode, to intersect Grout's lode, which we calculate on accomplishing by driving about 4 fms. On Highburrow tin lode, in the 152 fm. level, east of engine-shaft, the lode is 6 ft. wide, worth 33*l.* per fm. In the 142 fm. level, east of Martin's east shaft, the lode is 4½ ft. wide, worth 20*l.* per fm. In the 132 fm. level, east of Martin's east shaft, the lode is 4 ft. wide, worth 16*l.* per fm.

TRELEIGH CONSOLS.—In the 100 fm. level, west of Garden's, the lode is 3 ft. wide, but not much ore. In the 90, west of ditto, the lode is 15 in. wide, and good stones of ore. In the 80, west of ditto, north part, the lode is 18 in. wide, and good stones of ore. In the 70, west of ditto, the lode is 2½ ft. wide, and worth 4*l.* per fm. At Wheal Parent the engine-shaft, sinking below the 40 fm. level, is down 4 fms. In the 40 cross-cut south, towards the middle lode, there is 25 fms. to drive; in the 40 fm. level east the lode is 18 in. wide, and good stones of ore. In the 30 fm. level the lode is disordered by a slide. At the middle lode, in the adit level east, the lode is 15 in. wide, and good stones of ore. We expect to sample on Tuesday about 105 tons tributers ore and 20 tons stamps.

TREHANE.—In the 78 fm. level north we are now carrying three branches two of which are fast approaching the main one, and are altogether about 14 in. wide with a promising appearance. The plat at this level being now completed, we have to-day commenced driving south. In the 68 fm. level north the lode is worth 5*l.* per fm.; in the south end the lode is 3 ft. wide, and worth 3*l.* per fm.; the stopes in the back of this level, both north and south, are worth, on an average, 12*l.* per fm. The lode in the stopes in the back of the 62 fm. level is worth 8*l.* per fm. The lode in the stopes in the back of the 55 fm. level, is worth 9*l.* per fm. The stopes in the back of the 45 fm. level are worth about 5*l.* per fm. The two parcels of ore mentioned in last report are sold—No. 1 at 23*l.* 11*s.* per ton, and No. 2 at 3*l.* 3*s.* per ton. The engine was set to work on the 21st ult., and answers remarkably well.

WEST WHEAL JEWEL.—We have not taken down the lode in any of the levels on Wheal Jewel lode (except the 70) in the past week. The 70 fm. level, west of William's cross-course, on Wheal Jewel lode, is worth 6*l.* per fm. The shallow adit level, west of Tregoning's shaft, on Tolcarne tin lode, is worth 7*l.* per fm.; the deep adit level, west of ditto shaft, on the same lode, is producing stones of tin. The 12 fm. level, west of ditto shaft, on the same lode, is unproductive. The following stopes are working on tribute:—The stopes west of Pryor's winze, in the back of the 12 fm. level, on Tolcarne tin lode, are worth 20*l.* per fm.; the stopes east of Tregoning's shaft, in the bottom of the 12 fm. level, on the same lode, are worth 25*l.* per fm.; the stopes west of ditto winze, in the bottom of the 12 fm. level, on the same lode, are worth 22*l.* per fm.

WELLINGTON.—The engine-shaft is sunk 2 fms. 2 ft. under the 42 fm. level; this shaft is not on the course of the lode. The lode in the 42 fm. level, east of said shaft, is from 12 to 15 inches wide, composed of mundic and spar. The lode in the winze sinking under the 32 fm. level, just over the 42 fm. level, is 2½ ft. wide, and on the north part there is a branch of copper ore from 6 to 8 in. wide, worth 8*l.* per fathom; we are expecting every day to see the one in the 42 fm. level under this winze. The lode in the 32 fm. level, east of Parcelly shaft, is 18 in. wide, producing a small quantity of copper ore; the lode in this level has, for the last month's driving, been worth about 12*l.* per fm., and has still a good course of copper ore, about 15 fms. east of the present, and gone down under the 22 fm. level, which we hope soon to see. There is no change in the north lode to speak of since the last report. In driving north, west of the engine-shaft, in the adit level, we intersected the engine lode, about a week since, since which there is driven on its course 2 fms. east and 2 fms. west; the lode in the east end is from 8 to 10 in. wide, yielding ¼ ton of copper ore per fm.; in the west end, at this level, we have just driven through a cross-course, which has disordered the lode for the present; should the lode here prove as we are inclined to think, it will very much improve the prospect of these mines.

WHEAL COURTENAY.—The shaft is now sunk about 20 fms. below the adit level; the cross-cuttings will shortly be made towards the lode, where copper ore of the very best quality was obtained by manual labour, without the assistance of an engine, and sold to Messrs. Sims, Willyams, and Company, at 9*l.* 9*s.* per ton; the second quantity obtained was sold to Messrs. Vivian and Son, at 10*l.* 18*s.* per ton. There is now fixed at the mine a first-rate engine. From the several reports already made by scientific and practical miners, very considerable advantages may be fairly expected.

WHEAL MARY ANN.—Pollard's shaft is sunk 13 fms. 5 ft. under the 50 fm. level; we shall now commence the cross-cut to intersect the lode. The lode in the 50 fm. level, south of Pollard's shaft, is 1½ ft. wide, and producing good stones of lead. The lode in the 40 fm. level, south of the shaft, is 2 ft. wide, and worth 7*l.* per fm. The 30 and 15 fm. levels, south of the shaft, are suspended, the men being employed in another

part of the mine for a short time. The lode in the 60 fm. level, south of Barratt's shaft, is 2½ ft. wide, and worth 6*l.* per fm. The stopes generally are looking well. We shall sample to-morrow two parcels of lead ore—No. 1, computed 90 tons, and No. 2, 50 tons.

WHEAL SARAH.—We have not made much progress in this mine this week, owing to the small steam-engine being a little out of repair; the engineer, however, has put it to rights again, and all the water is out of the mine, and the men have resumed working. The bottom end is still improving for lead, and Mayhew's shaft is sinking on a good course, in good ground. I shall send you another sample of the gossan ores, on Saturday, for assay. We have made another discovery in the east part of the mine, by cutting another large lode, carrying beautiful gossan, in good killas, but I cannot say anything as to its size until next week, when I shall report more fully concerning it. This discovery makes us more certain of this being a good and valuable sett, and you may see, by this, that since I have had the management of the mine, I have used every exertion to find her worth.

WHEAL TOM.—I think we have got some good work for tin; we have got down into a beautiful country, and the lode is carrying two regular walls completely into a settled country. It is a beautiful copper lode, making tin on the backs; I think, as we sink down, we shall meet with a great improvement. I intend to give a long report of this district next week (10th March). I have highly recommended this mine, because I feel myself justified in doing so. The lode is improving every foot we sink; it is a fine copper lode, just making a little tin on the back.

WHEAL TRELAWNY.—In the 82 fm. level, north of Phillips's shaft, the lode is 3 ft. wide, and worth 12*l.* per fm.; in the 82, south of ditto, the lode is 3 ft. wide, and worth 4*l.* per fm. In the 72, north of ditto, the lode is 2½ ft. wide, and worth 8*l.* per fm.; in the 72, south of ditto, the lode is 2½ ft. wide, and worth 5*l.* per fm. In the 62, north of ditto, the lode is 4 ft. wide, and worth 17*l.* per fm. Trelawny's shaft is down 5 fms. below the 82 fm. level—ground still favourable for sinking. In the 82 fm. level, north of this shaft, the lode is 3 ft. wide, and worth 8*l.* per fm. In the 72, north of ditto, the lode is 2½ ft. wide, and worth 10*l.* per fm.; in the 72, south of ditto, the lode is 3 ft. wide, and worth 13*l.* per fm. At the north mine, in the 55 fm. level, north of Trehane, there is no change since our last report. In the 50 fm. level, south of Smith's shaft, the lode is 2½ ft. wide, and worth 7*l.* per fm. In the 40, north of ditto, the lode is 1 ft. wide, and worth 7*l.* per fm. In the winze sinking under the 30 fm. level, north of Smith's shaft, the lode is 2 ft. wide, and worth 6*l.* per fm. The stopes, on the whole, are producing much as usual. Two parcels of ore were sold on the 5th inst.—viz.: to Messrs. Locke, Blackett, and Co., 99 tons, at 19*l.* 12*s.* 6*d.*, and to Messrs. Sims, Willyams, and Co., 50 tons, at 4*l.* 10*s.* 6*d.*

WHEAL TRESCOLL.—The ground throughout the mine is a very fair decomposed granite—so much so, that we have difficulty in keeping it from coming together. I am sorry to say that we have not made much progress this last week, having had a run in the bottom level, also in the flat-rod shaft, but we have secured it again, and are sinking and driving fast. We expect to cut the little C lode, in the 20 fm. level, in the course of a few days; there is a great quantity of water proceeding from the ground, which indicates that we are near it. In driving east, on the B lode, we are not able to take any part of it down before we cut the cross-course, as there is so great a quantity of water proceeding from it, and the ground so soft, that we are afraid of running the mine together. We hope to cut the cross-course in a week or 10 days. The water is very quick in the flat-rod shaft, so that the lift is not sufficient to keep it off. We intend to put a larger lift down in the course of next week. I hope this shaft will soon unwater the large course of tin, so that we may be able to work on it. We are driving a shallow level north in the killas to cut East Beam lode. We have found very fine stones of tin near this place from this lode, and hope to cut it in a few days. All the machinery is in good order, and works well. I hope in my next report to relate something good, as we shall cut by that time several fresh lodes.

WHEAL VINCENT.—There has been but little done on the north lode these last three days, by reason of cutting a large run of water; but I am happy to state, it is again in fork. The south lode, in the different parts, is still holding good, and both the stamps are at work night and day. Our wind-engine works extremely well, with the slightest breeze.

FOREIGN MINES.

LINARES MINES.—The following has been received from Mr. H. Thomas:

Linares, March 3.—Annexed is a statement of lead weighed in store, and which will now rapidly increase as the whim is drawing from the tributors. We estimate that, by the end of March, we shall have broken 100 tons. You will notice that what we are weighing in is lead ore in lumps, and that none of the smalls, or remolidos, are yet dressed. Now that we can spare the English carpenter to assist about the floors, I trust there will be little more delay before we commence washing. The water is now lowered in the San Gaspar winze, under the 30 fm. level, 2 fms. I see that Capt. Curry calls the next the 45 fm. level: we are in the habit of calling the second level the 30, when it is in reality the 31; and we are assured that the next level, although on the section 15 fms. below the second, is not in reality so much by 2 fms. This would make the water we have to get out before reaching the next level 13 fms. only, and not 15, being the difference between 30 and 45.—Ores weighed in to 2d March: 2608 arrobas, about 32½ tons—referring you to Capt. Curry's report as under.

Report from Captain Curry.

March 2.—Our pitwork for draining the mine to the 45 fm. level is going on remarkably well, and though our progress may not be considered rapid, yet, when we take into account the vast length and large excavations which have to be cleared with pumps of small calibre, we may consider it very fair work; we are now down something better than 2 fms. below the 30. Our two whim-shafts, sinking below the 17 fm. level, are progressing very well. San Juan is 2 fms., and Shaw's about 1 fm., below the 17—the ground moderate in each. A plat is now in course of being cut at the bottom of the Calavera, or new whim-shaft; when completed, which we expect will be at the latter end of next week, this will be let to sink to the 45 fm. level on the course of the lode, or in old work, whichever it may turn out to be. This will be carried down with all dispatch possible, in order to reach the 45 simultaneously with draining the water, when the shaft will be ready at once to clear the levels and to examine the workings at that depth. We have commenced drawing from this shaft with our sump-whim, which commands both shafts. Our tribute pitches are all let again at the same tribute as last month—one at 20s. per ton, one at 36s., two at 45s., one at 54s., and I am happy to say all are doing well, and we confidently expect to have raised 100 tons by the end of the present month. We are still going on to enlarge our dressing floors, laying down necessary apparatus, building the requisite houses, or sheds, which will be required—rather extensive, as we have no doubt our raisings will be large in two or three months from this time.

PENDARVES CONSOLS AND GUSTAVUS MINES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—As "Pendarves Consols" and "Gustavus Mines" have been taken notice of in your valuable Journal, being connected with these mines, I consider it my duty to lay before the world, but more particularly the gentlemen who have taken shares from my report and their knowledge of the property, and to ask you to find space for, in an early impression, the following lines, copied from Pryce's *Mineralogy*, page 287 and 288; also, a ticketing paper for sales of copper ore, sold 10th July, 1777, at Redruth:—

"About 50 years back, great quantities of copper ore were risen from three principal mines in this county—viz.: Huel Fortune, in Ludgvun; Roskear, in Camborne; and Pool Adit, in Illugan—the produce of which mines were sold to the few buyers at their own price. The four copper companies—viz.: the Brass-Wire Company, the English Copper Company, Wayn and Company, and Chambers and Company—being then united and confederated, there can be no doubt of their beholding with a single eye their joint interest and pursuit, till they were interrupted by a gentleman from Wales, who visited this county in order to improve his own branch of business in the same way. Let his motives be ever so selfish, the gentlemen miners at that time, if not their posterity, were manifestly benefitted by his visit; for, just then, 1400 tons of copper ore, which had been lying unsold some years at Roskear and Huel Kitty, were offered to this gentleman, and for which the confederated buyers would give only 4*l.* 5*s.* per ton; but so contracted were the principles of the miners in those days of irremediable oppression, that they obliged this friend to their country to deposit a sum of money, equivalent to the supposed amount of their ores, before they would consent to weigh them off at the advanced price they had agreed to take for their commodity. These confined notions will ever prevail where the trade of a country is subject to the domination of rapacious and dishonest combinations. However, this gentleman bought the 1400 tons of ore at the advanced price of 6*l.* 5*s.* per ton, which he paid for with ready money, and gained much above 30 per cent., as the writer is well informed from the most indubitable authority! What must have been the profits of companies confederated to serve their own interests without limitation or control? This new comer bought 900 tons more at Roskear, at 7*l.* per ton; and, in less than six months before he left Cornwall, he purchased 3000 tons, upon which he deservedly made very little, if at all, short of 40 per cent. profit.

"Soon after this the buyers and sellers mutually agreed to ticket for all copper ores which should be ready for sale at stated times; and the highest bidder, or ticket, should be the purchaser. On the very onset of this compact, 300 tons of ore, belonging to the same mine, were to be ticketed for on a day appointed, in Redruth, when, the agent of the mine having absented himself sometime beyond the limited hour of sale, a certain gentleman, of great address, power, and fortune, declared himself the purchaser by private contract, at 8*l.* 17*s.* per ton, to the shame and confusion of all the adventurers.

"It is to this nefarious transaction that we owe the present mode of ticketing for copper ores. The proprietors and adventurers in mines of those times found themselves in a predicament singularly ridiculous and distressing; they possessed a commodity whose value they could not tell how to ascertain; and the buyers, who were acquainted with every requisite for their own advantage, had formed themselves into a confederacy the most pernicious and destructive to the whole copper mine interest of this county. It was impossible that such a state of affairs should long continue. The secret at length transpiring, other companies were gradually formed; and, from an opposition and rivalship in trade, the adventurer received a better price for his copper ore, though far beneath its just value.

"In the beginning of my acquaintance with mining affairs, about 27 years past, there were six companies established for buying of copper ores. At present I think there are 18 companies, which attend by their agents, and throw in their tickets on the day of sale. It will be necessary to promise that a day of sampling is fixed (see book iv., chap ii., p. 245), with a fortnight's interval between it and the ticketing day, for trying the samples of ore, and receiving answers from their principals. On this ticketing day a dinner, almost equal to a City feast, is provided at the expense of the mines, in proportion to the quantities of ores each mine has to sell, and the adventurers, with the companies' agents, assemble together. Soon after the cloth is removed, the tickets containing the different offers of the different companies are produced, and registered by the agents of both buyers and sellers, the originals being delivered to the proprietors of the mines, and the highest bidders are, of course, the buyers.

"In order to evidence the concise and easy method of ticketing for copper ores, I have subjoined a duplicate of a ticketing paper, by which the reader may apprehend, at one glance, that 10,000*l.* worth of ore may be sold, and appropriated to the respective buyers, in half-an-hour's time.

Copper Ores Sampled the 26th of June, 1777, and Sold the 10th July, 1777, at Redruth.

	Tons.	Horz. £	s.	d.	Bevan. £	s.	d.	Phillips. £	s.	d.	Williams. £	s.	d.	Smith. £	s.	d.	Banniack. £	s.	d.	Edwards. £	s.	d.	Bunt. £	s.	d.	Dickenson. £	s.	d.	Stephens. £	s.	d.	Ourkatt. £	s.	d.	Warren. £	s.	d.	Pappa. £	s.	d.
Roskear	86	5	2	6	6	1	0	6	0	0	6	3	0	6	0	0	5	11	6	6	6	0	5	9	6	5	0	0	5	15	6	5	14	0	6	4	0	6	0	0
	*68	12	4	0	10	15	0	11	4	0	12	4	0	11	2	0	11	16	0	12	4	6	11	2	6	11	2	6	12	2	6	11	18	0	12	3	6	11	19	6
	54	8	14	0	8	14	0	9	0	0	9	16	0	8	19	0	9	13	6	9	11	0	8	18	6	9	1	0	9	1	6	9	3	0	9	14	0	9	3	6
	50	11	1	0	10	2	6	11	2	6	11	5	0	11	3	0	10	18	0	11	1	0	11	5	6	10	18	0	11	3	0	10	19	0	11	5	0	11	1	0
	42	7	3	0	7	4	0	6	16	6	7	2	6	7	1	6	6	19	6	7	2	0	7	3	6	6	17	0	6	19	6	6	15	0	6	19	0	6	15	0
	19	14	2	0	13	13	0	14	1	6	14	0	0	14	1	0	13	18	0	14	1	6	13	19	6	13	16	6	13	18	0	13	19	0	14	5	0	13	18	6
Huel Cherry	44	7	14	6	7	3	6	7	9	0	6	18	6	7	5	0	7	15	0	7	3	6	7	1	0	6	19	0	6	19	6	6	18	0	7	4	0	6	17	0
	36	4	1	0	4	1	0	3	10	0	3	15	0	3	2	6	3	3	0	3	19	0	3	16	6	3	4	0	3	11	6	3	5	0	3	19	6	3	15	0
	26	4	6	0	4	1	0	3	16	6	3	16	6	3	11	6	3	14	0	3	13	0	3	13	6	3	10	0	3	17	0	3	19	0	4	0	0	3	14	0
	9	2	2	0	1	18	0	1	15	0	1	16	0	1	19	0	1	15	0	2	2	6	1	16	0	1	14	0	1	13	0	1	15	0	1	19	6	1	17	0
Huel Chance	90	8	9	0	7	19	0	8	10	0	8	5	0	7	19	0	7	18	6	8	2	6	8	3	0	7	17	6	7	5	6	7	15	0	8	8	0	8	0	0
	84	6	4	0	5	18	0	6	6	0	6	11	0	5	15	0	5	17	6	6	5	0	6	4	0	5	10	0	5	12	6	5	15	0	6	4	6	6	1	6
	56	4	2	6	6	0	0	4	19	6	4	14	6	5	9	0	5	15	0	5	18	0	5	16	0	5	1	0	5	14	0	4	4	0	5	13	0	5	12	6
	44	18	1	0	17	2	6	17	17	0	18	2	0	16	19	0	16	19	6	17	17	6	17	9	6	17	0	0	16	19	0	16	16	0	17	9	6	17	14	0
	20	3	2	6	3	5	0	2	19	0	2	16	0	3	12	6	3	1	6	3	10	0	2	18	0	3	15	0	2	17	6	2	18	0	2	19	6	3	0	0
Ditto Halvan's Ore	20	1	19	6	2	2	0	2	1	0	1	18	6	1	16	0	1	15	0	2	2	6	2	0	0	1	16	0	—			1	11	6	—			—		
Stamped Ore	15	1	10	0	1	14	0	1	15	0	1	11	0	1	14	6	—			1	16	0	—			—			—			—			—			—		
Vivian's Burnt Ore	5	1	2	6	1	3	0	—			—			—			—			1	5	0	—			—			—			—			—			—		
In all	764	80			130			90			128			20			44			149			84			—			20			—			19			—		

* This parcel to be equally divided between Edwards and Ennis, both offering 12*l.* 4*s.* 6*d.*

It will thus appear, that nearly all the ores sold at the ticketing came from these mines, now called Pendarves Consols and Gustavus Mines, and what I wish to draw attention to, is the large amount of returns at comparatively shallow depths, while I question if any of it was broken from below the 50 fm. level. Wheal Kitty, Wheal Chance, and part of Wheal Cherry, form Gustavus Mines; part of Wheal Cherry, Roskear, and Wheal Susan, Pendarves Consols.

You will have read that Wheal Kitty, about 50 years back (from 1777) produced large quantities of copper ore, and from reports it is only wrought between 30 and 40 fms. below the adit. Assuming this to be the case, it is only fair to presume, that in days of the steam-engine being in its infancy, and extravagance in consumption of fuel, that this mine will be resumed, with every prospect of being highly remunerative. The lines copied from Pryce's *Mineralogy* are not fiction, but, in my humble opinion, substantive matter for parties embarking in the *new* undertaking.

THOMAS RICHARDS.

Marazion, March 12.

WHEAL GROSE.

SIR,—In consequence of my absence from home, I have not, until to-day, had an opportunity of seeing the *Mining Journal*, in which, however, I find, to my surprise, the report of Wheal Grose, as regards the breadth of the lode, contradicted. Now, the statement I am about to make will explain the whole matter. When Mr. W. H. Stephens inspected the mine, for the purpose of reporting on it, the lode at the point of intersection had not been cut through; there was, however, at *that* time, 3 ft. 6 in. of the lode in sight. Notwithstanding this, Mr. Stephens omitted to name *any* breadth in the report, which, when sent to me I inserted, knowing it to be correct; and the lode a few days after, when cut through, proved to be upwards of 4 ft. wide, and continues from 4 ft. to 5 ft. at the present time. Mr. W. H. Stephens was perfectly aware of the above fact, when he sent to deny the statement in reference to the breadth of the lode, as coming from himself. The mine is open for the inspection of any person wishing to test the truth of my assertions.

J. CROOK.

West Park-place, Egloshayle, March 18.

CWM ERFIN MINE.

SIR,—Being rather largely interested in this mine, I noticed a paragraph in your paper, some weeks ago, which, as it was not acted upon for some time, I hoped would prove inaccurate. It, however, now appears that there was too much truth in it. It was to the effect that Messrs. Taylor and Son had taken the management of Cwm Erfin Mine. This is a mine very simple of management, containing only a narrow and single lode, not complicated by branches, cross-courses, or any other difficulty, and only 20 fms. deep from the adit. I, consequently, had hoped that the proprietors would have adhered to the simple machinery in use in Cornwall for the management of mines, consisting of a meeting of the proprietors every two months to examine the accounts, and a practical man, such as the present agent (Capt. Samuel Nicholls), to carry out the underground work. This would have secured economy, simplicity, and profit, instead of a system expensive and complicated, and only bearable with impunity in rich mines. The Cwm Erfin Mine is not of the magnitude to bear such a cost. The courses of ore are each only 25 fms. long; the western one yielding 1 ton, and the eastern one 2 tons to a fm.—both, together, equal to a monthly return of 70 tons. This, with economic management, would yield a profit of 2500*l.* a year, and pay us as proprietors for the money we have invested; but I am in a position to prove by analogy that the whole of this will be swallowed up in expenses, unless the shareholders revert to some other system than the one now adopted. Last month, this little mine made, under Capt. Samuel Nicholl's management, a profit of nearly 100*l.* from a return of 10 tons of ore—the cost being 52*l.*, and the ore money about 150*l.* The present call of 10*s.* a share, amounting to 500*l.*, would have purchased a steam-engine, with drawing and crushing machinery, which would have enabled the agent to have dressed 70 tons a month; but I have no doubt that the whole of this money, and many further calls will be exhausted, without either erecting an engine or producing such results as were obtained last month. It has long been evident that the water-power of this mine could only return 10 tons of ore a month through the year; but, in the face of this, all remedy has been neglected, and the machinery is now *high* and *dry*, and without any water to drive it. In this dilemma, your valuable Journal is the only hope of the shareholders, or tribunal from which justice can be derived; and I appeal to it, that the shareholders may understand their own interest, and institute a state of things calculated to produce a healthy re-action.

A SHAREHOLDER.

Rhayader, March 13.

GUADALCANAL SILVER MINING ASSOCIATION.

A requisition having been forwarded to the directors by 10 shareholders, holding one-fourth of this undertaking, stating that some doubt had arisen as to the legality of the preference shares, in consequence of their not having been paid for at the time fixed; and the requisitionists requesting the directors to call a special meeting, for the purpose of at once deciding this important question, and also to inquire into the financial position and future prospects of the company—such special meeting was called by them, and held at the offices of the company, Broad-street-buildings, on Monday last, the 11th inst.,

G. K. HUXLEY, Esq., in the chair.

The notice convening the meeting having been read, the CHAIRMAN said that there was some informality in the requisition, but they had waived the point, and he should be happy to hear any observations from shareholders on the subject of the meeting.

Mr. J. LA'MERT said that, as the party who had got up the requisition, he would observe, that himself and friends, who held so largely in the association, felt greatly the mortification of the position in which they were placed by the resolution passed at the adjourned special general meeting, held on the 15th Dec. last, by which the dates fixed by the resolution of a meeting of the 29th Nov. previous, payments of calls were extended from 17th Dec., 1849, and 17th January, 1850, to 1st January and 1st Feb. respectively. He first contended, that the resolution had never passed; it was merely said in the minutes to have been "proposed by the chairman, and agreed to by the meeting." He further insisted that, allowing such resolution to have been passed, the directors had acted illegally in receiving money after these dates from some of their own body, evidently with a view to place them in a position to hold their preference shares, while others tendering their calls subsequently to those dates were refused, and the privileges under which they were induced to take them of no avail: he asked the secretary, whether he did not receive from one of the directors, after office hours, on the 1st of February, or early the next morning, a sum of money, being the amount of his calls due on those shares?

Mr. RYDE said he certainly did not stay after hours, and when the money alluded to was paid, it was before five o'clock, although he had been told any time before 12 o'clock at night would have been legal.—Mr. LA'MERT continued, that there was a rumour out of doors that the directors intended to act on the stringency of the dates, and now refuse to acknowledge as preference shares all which were not paid; a large number of his friends were in this predicament, and they thought it a hard case that they, who had found the capital when the directors were in straits and difficulties, should have their shares, repudiated.—Mr. BRIGGS, who said he came from the country (Lewes, we understood), complained that he had had no notice of the time when the payments were to be made, although, on reference to the report, we find he attended at the adjourned meeting of the 15th of December, and moved one of the resolutions. He went on in a somewhat rambling and lengthy manner, deprecating the conduct of the directors in having placed him in a false position; they had misled him, as to that there were penalties attached to non-payment by a certain day, while others who had taken advantage of such knowledge to secure themselves at the expense of others—they had no right to alter the laws.—The CHAIRMAN explained, in the first place deprecating the rumour to which Mr. La'Mert had referred as being untrue, and emenating entirely with the public themselves; himself and the body of directors were no parties to coercive measures: he should have no objection to all the paid and unpaid scrip, if paid on by any period named, being made preference shares: he said that Mr. Briggs had assumed a law to have been made by the directors; it was no such thing—it was made by the shareholders themselves, at their half-yearly meeting, and the resolution making the preference shares was as follows:—

Moved by Mr. S. LA'MERT; seconded by Mr. T. UZIELLI,—

That the 2000 shares created by resolution of the special general meeting, held the 12th day of Sept. last, be entitled to a preferential dividend to the extent of one-fourth of the net profits accruing to this company, and that the remaining three-fourths of the net profits shall, after payment of the preferential sum above-mentioned, be divided among the whole 6000 shares of which the company consists, in equal proportions, subject to the following conditions—viz.: That the said privileges and advantages shall not accrue unless the new shares remaining unallotted, to the number of 750 (1250 having been subscribed for), be taken, and the calls already made be paid thereon on or before the 18th day of Dec. next; and that the resolution of the 12th day of Sept. last be rescinded, so far as regards the periods fixed for the payment of the remaining instalments, and that in place thereof the sum of 30s., now remaining due, be payable by two instalments of 15s. each, on the 17th day of Dec. next, and the 17th day of January, 1850, respectively. All parties desirous of availing themselves of any portion of the 750 shares referred to in the above resolutions, are requested to apply for the same without delay.

The dates of payment were, at the meeting of the 15th Dec., extended to January 1st and February 1st, 1850. It should be borne in mind, that this was an anonymous, or scrip, company, and the directors could not give notice to half the holders, from not knowing in whose hands the scrip was. A deed of registration was, however, in course of preparation, when he thought all the old shareholders must join, or be excluded any advantage.—Mr. DUNCAN, the solicitor to the association, explained his view of the case: he said, on the 12th Sept. last 2000 shares were created, of which 1250 had been paid upon on the 29th Nov., and to induce the remaining 750 to be taken, certain privileges and advantages were conceded, which were also extended to the 1250, provided both were paid up on two particular days—these two particular days were afterwards extended to Jan. 1st and Feb. 1st, and, strictly, the holders who did not pay on the 1st of January would be in as bad a plight as those who did not on the 1st February. He could assert that these several resolutions were, perhaps, not in such strict legal phrase as they might have been, for he was not present when they were drawn up; but it was competent for the meeting to pass resolutions, expressive of the opinion that the privileges and advantages of the preference shares should attach to all who paid by a certain day to be named. After a very long and somewhat noisy discussion, two resolutions were drawn up by Mr. Duncan, and carried *nem. con.*; they were to the effect, that it was the opinion of the meeting that all parties holding any of such 2000 shares who paid the call by Monday, the 8th April, should be entitled to all the privileges and advantages conceded at the resolution of the general meeting held on the 29th Nov.; and that it is also the opinion of this meeting that the deed of registration recognise all such privileges and advantages to the holders who pay their calls by the day named, and that a special meeting be held on the 3d of April next, to approve or otherwise of such deed. With respect to the financial position of the association, there was a sum due upon calls, which they could not now depend on until the 1st May. There was 650*l.* due to the Spanish company, and 500*l.* at least would be required to bring home the men in case of failure. As to the inspection of the mine, they had been in communication with Capt. Rule; and after some conversation on this subject, it was agreed to pay Capt. Rule, or some other competent agent, a sum for inspecting the state and prospects of the undertaking; and a vote of thanks having been passed to the chairman, the meeting separated.

WHEAL MAY MINING COMPANY.

A general two-monthly meeting of adventurers was held at the offices of the company, Old Broad-street, on Monday, the 11th instant.

Mr. REYNOLDS in the chair.

A statement of accounts for the two months ending February, amounting to 114*l.* 11*s.* 11*d.*, was presented, examined, and passed.

It was resolved that, for the purpose of prosecuting the mine with vigour, a new pumping-engine be purchased and erected, and the shaft sunk 30 fms. on the underlay of the lode.—A deputation, consisting of three gentlemen of the committee, having recently visited the mine, presented the following report, which was read to the meeting:—

In accordance with a resolution passed at a meeting held on the 1st March inst., appointing a deputation to visit the mine, and report thereon, which we did on the 4th inst., where we met Captain Carpenter, who afforded us every facility for our obtaining the best possible information. The following is the state of the workings, and the conclusion arrived at for the future operations on the mine, after consulting Capt. Lean, of the Holmbush Mines. The engine-shaft is sunk 2 fathoms 2 feet below the cross-cut, or 5 fms. 2 ft. from the surface. The shaft is on the course of the lode, and producing much water, at the bottom of which large stones of rich ores were raised; but this impediment being in the way, the men were not permitted to work any longer. The deep adit has been driven within 2 fms. (besides the underlay) of the south lode; but the air being very foul, the men cannot proceed with their work with that rapidity it is desired they should do. This adit will intersect the south and newly discovered lodes, about 15 fms. deep, which second lode is only 15 feet from the first, or south lode. There are four east and west lodes, and two cross-courses, in the sett. There is some ore dressed, of a very good quality, the produce of which can now be easily ascertained, but would not recommend selling until a larger quantity can be raised, which can then be placed in the market at a greater advantage, and at a higher price. For the purpose of effectually carrying on the future operations on the mine with spirit and economy, it is recommended at once to erect a portable steam-engine, similar to the one now at work at West Sharp Tor, which was inspected by the deputation, and highly approved of, and for which purpose we obtained an estimate from Messrs. Nicholls and Co., of the Bedford Foundry, Tavistock, for erecting one of a similar kind, including balance bob, pumps, &c., to sink 10 fms., to be delivered on the mine free of all charges, and placed in a full and complete state of working, for the sum of 385*l.* 14*s.*; also to sink an air-shaft on the course of the lode, that the deep adit may be ventilated, and the men enabled to expedite their work at a less price than is now given them. The air-shaft will also prove the lode at that depth as well. It is also suggested that, in case any shareholder be not satisfied, he should at once visit the mine, and judge for himself, when there would not be the slightest doubt but he will be convinced, and perfectly sensible, of the legitimacy and value of the speculation. The deputation beg further to state that the mine is worked as pointed out by

Capt. Lean in his report, to whom we have to tender our warmest thanks for the courtesy he exhibited towards us in elucidating the different positions of the mine, as to its future workings, and the ultimate result of its returns, which were of the most satisfactory character.

ENGINEER'S REPORT.

March 9.—I have this week made a careful survey of the mine, both in the new and old workings. The engine-shaft is down 13½ fms. –9½ fms. closely timbered, the remaining part being in solid ground; it has been executed in a truly workmanlike manner, and reflects great credit to the agent. The whim is erected, and the whim-round is enlarged. The central whim-shaft has been cleared and secured; it is 12 fms. perpendicular, and 8 fms. on the underlay of the lode. At the bottom the levels have been opened, and the stopes cleared several fms. up; the lode, as seen by the excavations, appears to have been about 3 ft. wide, dipping 4 ft. in the fm., and very regular. A little westerly from the shaft there is a junction from another lode, on which much work has been done; a part of one of the arches now remains, and on which the tributers are now at work. A few fathoms further west a cross-cut has been cleared, which intersects the adit level, and takes the water freely from the mine. To the east of the shaft, about 10 fms., a caunter lode appears to have come in; here a good run of tin ground has been found to go down; part of the lode is still standing, which shows the nature of it. At the south whim-shaft, nothing new has been done in opening the old workings, but sufficient may be seen to judge what extensive operations may be carried out when the mine is put down 20 fms. under adit. Near the north lode, a small lode has to-day been discovered, running diagonally with the main lode; its size has not yet been ascertained, but a sample of the tinstuff has been raised, and is now being stamped out; it will be found to produce about 3 cwts. of tin to the 100 sacks, which, for so shallow a depth, may be pronounced good work. None of the lodes appear to carry any leader, but the tin is finely disseminated throughout their entire thickness, and which will cause them to be very productive. I should advise the company not to open any more of the old levels at this depth, as it requires much timber to secure the ground, which is in a very disordered state; sufficient is now to be seen to satisfy any one of the value of the lodes. In three months from the time the new engine is set to work, there will be sufficient ground to set on more than 100 tributers, and the mine be making a profit. I have set the excavations for, and erection of, the engine and boiler-house, stamps, floors, &c., by contract. The new engine now being manufactured by Messrs. Donkin and Co., Bermondsey, is progressing, and which I hope will be ready for shipment in six weeks. A small sample of tin now being stamped out with our water-power, will be sold by the next meeting of adventurers, when an estimate may be formed of what will be the monthly returns. I have every reason to believe, before another six months, the entire mine may be set on tribute, at 10s. in 1*l.*, which, after paying every cost, will return a profit of 20 per cent.

A vote of thanks having been passed to the chairman and committee, the meeting separated.

ALFRED CONSOLS MINING COMPANY.

At a meeting of adventurers, held on the 12th inst., the accounts were examined and passed, showing—Labour cost, 600*l.* 17s. 2d.; merchants' bills, 228*l.* 14s. 11d.; new boiler for engine, 152*l.* 2s. = 981*l.* 14s. 1d.—By ores sold, 476*l.* 15s. 11d.; debts received and sundries, 10*l.* 17s. 1d.: leaving balance against adventurers of 494*l.* 1s. 1d.—A call of 10s. per share was made.—It was resolved, that the issue of certificates of shares be discontinued; and that a new company be formed for working Great Wheal Alfred Mine, the shareholders in Alfred Consols having the option of taking a less or larger interest in the former than they hold in the latter, and that notice be sent to each shareholder.—The following report, from Capt. M. White, was read to the meeting:—

March 12.—In presenting my report for your meeting of to-day, I am pleased to remark that Field's engine-shaft is sunk to the depth of the 70 fm. level, and the sumpmen just put to drive in that level; the lode in the east end is from 6 to 7 ft. wide, composed of ore, mundic, and blende, and, from present appearances, expect daily to reach the course of ore gone down from the 60 fm. level. In the west end the lode is from 3 ft. to 4 ft. wide, very kindly in appearance, intermixed with ore. The lode in the 60 fm. level east appears to be increasing in width; it is opened on for 5 ft. in width, worth 40*l.* per fm., and the south wall not yet seen. In the winze sinking under the 60 fm. level, the lode is 5 ft. wide, 2½ ft. of which is rich for copper ore, worth 40*l.* per fm. The lode in the 60 fm. level, west of the sump-shaft, is 4 ft. wide, intermixed with ore, but not rich. At our setting on Saturday, two tribute pitches, in the back of the 60 fm. level, were set, at 2s. 6d. in 1*l.* each.

TRETHEVY COPPER MINING COMPANY.

The first general meeting of shareholders was held at Exeter, on Tuesday, the 5th inst., WILLIAM TRAER, Esq., in the chair.

The statement of accounts, showing a balance in favour of the company of 177*l.* 8s. 10d., was passed. The purchase of the engine, the contracts for pit-work, and building of engine-house, were confirmed by the committee. The rules and regulations for the management of the company, as well as the appointment of the agent, received the sanction of the meeting. A call of 1*l.* per share (being in accordance with the terms of the prospectus) was made, for the payment of engine, and other requisite machinery, and carrying out the operations with spirit and energy.

The following report, from Capt. Seymour, was read to the meeting:—

March 5.—I have much pleasure in acquainting you that we are progressing with our operations here as expeditiously as possible, although the unfavourable weather has prevented our accomplishing as much as we could have desired. The new road has been completed from Trethake farm-house to the mine, and we shall now have a good thoroughfare. We have nearly completed the building of the carpenters' shop, and hope to have it covered in during the current week. We shall also proceed with the smiths' shop forthwith. We have timbered and secured the adit plat, and the men are now engaged in strengthening the timbering in the shaft, which we found in a very delapidated state, so that there shall be no impediment in carrying out the pitwork properly as soon as required.

BOTALLACK.—A meeting of adventurers was held at the mine, on the 5th inst., when the following statement of accounts was submitted and passed, showing—Balance from last account, 2546*l.* 7s. 3d.; costs and merchants' bills for October, November, and December, 1961*l.* 13s. 4d.=4508*l.* 0s. 7d.—By tin sold, 4283*l.* 8s.: leaving balance against mine, 224*l.* 12s. 7d.

NORTH ROSKEAR.—At a meeting of adventurers held at the mine, on Monday, the accounts were examined and passed, showing—Balance at the end of Nov., 2291*l.* 3s. 8d.; ores sold, 5501*l.* 15s. 4d.=7792*l.* 19s.—To costs and merchants' bills for Dec. and Jan., 4925*l.* 8s. 1d.: dividend of 5*l.* per share, 700*l.*: leaving balance in favour of adventurers, 2167*l.* 10s. 11d.—A dividend of 5*l.* per share was declared.

WHEAL ELIZABETH.—At a meeting of adventurers held at North Pool account-house, on Monday last, the accounts were submitted and passed, and a call of 5*l.* per share was made. The engine will be at work in about a month, and the mine is stated to be a promising one.

WHEAL WHIDDEN.—A special general meeting was held at the offices, Craven-street, Strand, on Friday, the 15th inst.—C. KELSEY, Esq., in the chair.—The accounts having been audited, a call of 10s. per share was made, the same being payable within 14 days from the time of the meeting being held. It was understood that a subsequent meeting would be convened, to consider the nature of the future operations, of which due notice would be given.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

NORTH WHEAL FRIENDSHIP.—In the Journal of last Saturday, mention was made of a rich lode being discovered in this mine, which has since been ascertained, without doubt, to be a continuation of the Peter Tavy and Mary Tavy lodes. A company for working this sett has already been very quietly formed in London, and nearly the whole of the shares taken up; and this day the directors arrived, and went over the sett, accompanied by Capt. T. Dunn, when arrangements were made for commencing the works on the western side of the Tavy, in Bremble Wood, where some beautiful specimens of virgin copper were found, and which, I understand can be seen at the offices of the company.—*Tavistock, March* 14.

WHEAL SPEARNE.—I have examined the above mine, and find they have just completed the engine-shaft to the 128 fm. level under the adit, and there is now a good lode in the shaft, but they cannot sink more for the next two months before their levels are extended on the lode; east and west there is now a good lode of tin in each end. In the 116 fm. level, east and west, there is a good course of tin. In the 90 there is a good branch of tin. In the 60, 50, and 40 east they have good tin ground. On the whole their tribute pitches are looking well. The agents handed me the sampling book, and I find they have sampled only part of February tin, 710 sacks, worth 622*l.* 2s. 3d., or more than 70 tons of tinstuff, worth 8*l.* 10s. per ton; and, from what I can learn, they never raised such rich tinstuff in any one month before. It may be here stated they have only expended 1280*l.*, and in the last four years the purser has handed back 3500*l.* to the adventurers, leaving a balance of 250*l.* in hand, and a great deal of tin ground to be taken away with little cost; and should you be disposed to lay out money in mining adventure, there is no mine to my knowledge where you could lay it out to a better advantage, and with the prospect of being amply remunerated for your outlay.

IMPORTATION OF COPPER.—A vessel arrived from Coquimbo and Valparaiso has brought from the former place the very large quantity of 66,928 ingots of copper, consigned to a firm of commercial eminence in the metropolis.

SOUTH AUSTRALIA.—The following are the returns of exports, the produce of South Australia, for the quarter ended 5th July, 1849:—

Copper (35 tons 5 cwts. 0 qr. 9 lbs.)	£3650	0	0
Lead (1 ton 9 cwts.)	29	0	0
Copper ore (3578 tons 6 cwts.)	71170	0	0
Lead ore (169 tons 14 cwts. 1 qr.)	1905	0	0

The value of the above, and other produce exported in the quarter ending 5th July, 1849, was 96,012*l.*

ANCIENT MINING.—On the heathy waste of Eyam Moor an ancient piece of lead was recently found, showing the rude manner in which this metal was cast or converted from ore to lead. It seems from the specimen in question that the ore, when melted, was poured or run into stone moulds of a circular form, and concave from the top surface. The piece found was in a stone mould, its weight being 28 lbs., and was evidently converted from lead ore by the agency of fire made exclusively of wood. This singular and very rare relic of high antiquity is deposited in the Eyam Subscription Library.—*Sheffield Times.*

WYLAM'S STEAM FUEL COMPANY.—The fourth annual general meeting was held yesterday, at their offices, in Great St. Helen's, when the report of the directors was unanimously adopted, from which it appears that the high character and efficiency of the fuel for steam purposes was most amply maintained.

CAMERON'S COALBROOK STEAM COAL, AND SWANSEA AND LOUGHOR RAILWAY COMPANY.

It is satisfactory to learn that arrangements have been made whereby this property will not only be perfectly developed, but the liberal terms to which the lessees have acceded hold out good prospects for a return on the capital employed. There can be no question but that the purchase-money was far beyond the value to be attached to the property, considering the outlay necessary for a winning of the coal-field; and the state of the money market subsequent to the formation of the company, with the heavy payment made to the lessors, and the claims existing, were in themselves sufficient to create the division which ensued on its being found that, instead of the profitable returns which the shareholders were led to expect, increased calls were made. It will be in the recollection of our readers, that tumultuous meetings and adjournments have taken place, and at one moment all appeared to be chaos and confusion; it is, therefore, with pleasure that on the present occasion we note a change which has "come o'er the spirit of the dream," and promises to realise sterling profit to those interested. We shall briefly advert to the altered and, as we have already stated, the improved state of the companys affairs; trusting that, with caution and economy, the expectations entertained, and which we believe the property fully to justify, may be realised. The company is composed of 20,000 shares, three-fifths of which are held by the lessors, 4345 by the public, or present body of adventurers, and 3655 have been given up, or ceded, for a certain consideration, which latter number it is proposed to reissue. It should here be remarked, that of the 12,000 shares held by the lessors, they have assented to an arrangement (which will form subject of further remark) whereby two-thirds of the profits which would arise thereon is deferred until the other shares of which the company is constituted shall receive 8 per cent. on the capital advanced. In other words, the affairs of the company stand thus:—Arrears of call now due, 4760*l.*, or thereabout; proposed further call of 2*l.* per share, on 4345 shares, 8690*l.*—together, 13,450*l.*; which will, excepting the shares which are proposed to be re-issued, be the entire capital which can be called—the 12,000 shares held by the lessors being exempt from such payment. It is then proposed to issue 3655 shares (making the entire number 20,000), at 10*l.* per share, which would give a further capital of 36,550*l.*, being, together with the arrears and proposed call, 50,000*l.*, a sum which is considered more than ample for the purposes of the company.

The main feature of the scheme, or arrangement, may be said to be, that the new, or preferential shares, or about one-sixth of the entire number, shall be entitled to 8 per cent., before any dividend, or profit, be divided between the general body of shareholders; and that, after the payment of 8 per cent. to the preferential shares referred to, the second class shall be composed of the present shares, 4345, and one-third of those held by the lessors—together 8345, on which a dividend of 8 per cent. shall be paid, antecedent to any claim being put forward by the lessors on the 8000 deferred shares, which shall be entitled to an equal payment after the two first claims being satisfied; the leasors further agreeing to defer, for a given period (say, 20 years), their claim on the shareholders by bond, of 8000*l.*—the new, or preferential, shares being taken up free from any claim of purchase-money, interest, or otherwise, which may exist. This arrangement would appear to be equitable, and hold out encouragement to the holders of the preferential shares, as well as to the present shareholders. A large incubus will be removed; and, with economy and spirit, we can well anticipate an early return for the capital invested, from the legitimate working of the colliery,

DEVON GREAT CONSOLS MINES.

SIR,—I find that I have very justly exposed myself to some degree of censure, for having unconsciously omitted to refer to the ladies, in compliment to whom the principal shafts at these mines were named. The first mine opened—namely, the Great Wheal Maria, was called after the amiable lady of Mr. Josiah Hitchins, the originator of the whole concern; Wheal Fanny was called after their young and pretty daughter; and Wheal Anna Maria, I did mention before, was so named in compliment to Her Grace the Duchess of Bedford. It is scarcely necessary to state after whom Wheal Josiah, Hitchins' shaft, and Richard's shaft, were called. Wheal Thomas derives its name in compliment to Mr. John Thomas, of London, and Wheal Frementor has some local derivation.

Since the article on these mines was written, I have paid several visits to them, and I find that every day their prospects improve. In Josiah some valuable discoveries have been made. Preparations are in progress for sinking a shaft at Wheal Thomas, which is likely to realise great results; 50 tons of ore have been already raised there and sold. Next week there will be sold 1450 tons, of 9½ average produce, being ½ higher than the last sale, and likely to realise about 11,000*l.*, or 5500*l.* profit for one month's returns, the costs being about the same amount.—J. H. MURCHISON: *Tavistock, March* 14.

It is understood that the Great Western, and London and North-Western Companies, are in negociation, with the view of laying down the broad, as well as the narrow, gauge on the Stour Valley Railway, and the consequent abandonment of the Birmingham, Wolverhampton, and Dudley. Mr. Brunel, the engineer to the Great Western Company, visted Birmingham on Thursday. The tunnels are constructed for the narrow gauge.

The directors of the Midland Railway Company, impressed with the importance of a direct communication with the North-Western line, together with access to its projected station in New-street, are about commencing a branch, which will unite both lines near the present station in Lawley-street. The proposed branch will leave the North-Western at the commencement of the archways on the Coventry side of Lawley-street, and proceed by embankment and archways across the valley, leaving Vauxhall to the left, to the neighbourhood of Duddleston Mill, where it will join the present line of Derby Railway. The distance is about 1355 yards, and the present difference between the levels where the junction will be formed is about 30 feet. This will make the incline about 1 in 135. The new line will consist of 30 arches, with embankments at each end, and in order to effect a safe and easy junction in so short a distance, will present a considerable curve. The cost of the undertaking, including the purchase of land, is estimated at 40,000*l.*, and it is to be complete by the 1st of November. The London and North-Western, the Midland (including the Bristol and Birmingham), and the Birmingham and Oxford, will all run into the projected station in New-street.

A long petition has been presented to the House of Commons by shareholders in the Shropshire Union Railway company, requesting the appointment of a select committee to inquire into the causes of the depreciation in their property, and into the conduct of the promoters and directors. The petitioners allege that the canals, when purchased in connection with the railway, were in a state of utter insolvency—that one of them, the Ellesmere and Chester Canal, was in debt upwards of 800,000*l.*, and that the project of converting the canals into railways was to save the former from ruin, by changing the canal shares into paid-up railway shares, and increasing their then only nominal value. They state that the company have only constructed 29 miles out of 150 miles originally proposed; that a sum of 120,000*l.* has been expended by the directors in law and engineering; and that the 29 miles opened from Stafford to Shrewsbury are not paying their working expenses.

WOLVERHAMPTON, CHESTER, AND BIRKENHEAD.—On Thursday, Master Brougham proceeded with the lists of shareholders in this concern. The first contained the names of 10 provisional committeemen. The Master held all those provisional committeemen liable whose names had been duly registered in connection with the scheme, and as thus having, under the provisions of the Joint Stock Registration Act, agreed (though they might not actually have done so) to take one or more shares in the undertaking. This was sufficient to fix them with liability. On sundry parties present expressing doubts as to the identity of their signatures to the deed, the Master said, that while it would be for them to disprove this point, he had only met with one case of forgery of this kind, amongst many thousands that had come before him.

WEST CORNWALL RAILWAY.—The report of the Admiralty, on this company's application to Parliament for deviations in the line and branch at Hayle, gives assent to the bill, provided that the plans to be submitted show that no fresh obstacles will be thrown in the way of the free action of the tides of the Hayle estuary and the future improvement of the harbour.

RAILWAY COMMISSIONERS.—Capt. Harness, secretary to the Commissioners of Railways, is appointed to a high position in the Mint. He is succeeded by Capt. Simmons, as secretary, now one of the inspectors of railways. Captain Laffan is re-established on the commission as inspector.—*British Army Despatch.*

CORNISH STEAM-ENGINES.

The number of pumping-engines reported for the month of Feb. is 26—the quantity of coals consumed being 2983 tons, lifting, in the aggregate, 28,000,000 tons of water 10 fathoms high—the average duty of the whole is, therefore, 53,000,000 lbs. lifted 1 foot high by the consumption of a bushel of coal.—We shall give the particulars next week.

THAMES TUNNEL COMPANY

The number of passengers who passed through the Tunnel in the week ending March 9, was—No. of passengers, 18,286.—Amount of money, £76 3s. 10d.

EXPORTATION OF THE PRECIOUS METALS.—The following are the official returns of the exports of gold and silver from the port of London for the past week:—Gold coin to Mogadore, 200 ozs.; ditto to Mauritius, 250—Silver coin to Mogadore, 2000; ditto to Belgium, 20,000; ditto bars to ditto, 13,295; ditto to Dunkirk, 20,000 ozs.—Total gold, 450 ozs.; silver, 55,295 ozs.

NOTICES TO CORRESPONDENTS—*(Continued).*

Several communications, received by this morning's post, must stand over until next week.

"E. S. T." (Bromley).—Chloride of potassium may be obtained on application to Mr Button, Holborn-hill. The price depends on quantity and quality. In small portions, highly pure for chemical purposes, it is sold at 6d. per oz., or 2s. 6d. per lb., by taking some pounds. If not required in so pure a state, it can be obtained for very considerably less.

New Patents.

SPECIFICATIONS ENROLLED DURING THE PAST WEEK.

ROBERT GRIFFITHS, Havre, engineer: For improvements in steam-engines and in propelling vessels. The patentee describes and claims—1. The application of a sun and planet wheel gearing to the main shaft of a propeller, for the purpose of increasing its speed.—2. The application of two or more air-pumps to boat engines, for the purpose of equalizing and regulating their motion.—3. The use of an apparatus for indicating the force of the currents of water at different parts of the stern of a vessel, in order that the propeller may be adapted to the lines of the vessel. This apparatus consists of a number of spheres made fast to transverse rods attached to the bottom of vertical rods, which are made fast at top to other transverse rods connected to balance springs on deck.—4. A self-regulating pitch propeller, which consists of a hollow sphere on the boss, into which the ends of the blades fit loosely. These blades are attached to levers, the free ends whereof bear against arms fixed in a collar, sliding on the main shaft, which bears against a lever, connected to a spring placed inside the vessel, and capable of adjustment. By this arrangement the speed of the vessel itself will determine the pitch of the blades, inasmuch as when the resistance offered to them is great, their pitch will be diminished in proportion to the resiliency of the spring, which, through the intervention of the lever, resists the sliding back of the collar along the shaft (the arms fixed to the collar bearing against the ends of levers attached to the blades), and thereby counteracts the inclination of the blades to assume, under increased pressure, a position at right angles to the shaft.

BENJAMIN GOODFELLOW, Hyde, Chester, engineer: For certain improvements in steam-engines. The patentee describes and claims—1. A peculiar arrangement and construction of double-cylinder engine, in which the high-pressure cylinder is made to serve as the piston of the one in which steam is worked expansively.—2. A peculiar construction and mode of working steam-valves, applicable to the above description of engine, and to those worked on the expansive principle generally.

JAMES POTTER, Manchester, machinist: For certain improvements in spinning and doubling machinery. These improvements consist in several mechanical arrangements for actuating the delivery rollers, spindles, &c., and effecting the various motions in certain mules and doubling machines of a peculiar construction, which were specified under two former patents granted to Mr. Potter in 1831 and 1842.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

T. I. Hill, of Clapham, Surrey, gentlemen, for certain improvements in the treatment of copper and other ores, and obtaining products therefrom.

R. Holdsworth, of the firm of Holdsworth and Co., cotton spinners, and W. Holgate, engineer, for improvements in apparatus and machinery for warping worsted, cotton, and other fibrous materials.

W. C. Wilkins, of Long-acre, Middlesex, engineer, for certain improvements in ventilating, heating, and lighting, in lamps and candlesticks, in the manufacture of candles, and in the apparatus to be used for such purposes.

J. Nasmyth, of Lille, France, engineer, for improvements in the method of obtaining and applying heat.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

J. Gardner, Birmingham, invalids' supporter, or bed-rest.

S. Sharp, and Co., Vauxhall, an implement for distributing and sowing seed, and for a strickle or tool for regulating the quantity of seed in the said implement.

Deane, Dray, and Deane, King William-street, railway break.

T. Waddington, Manchester, a self-adjusting clip for gaiters and leggings.

T. J. Marshall, Bishopsgate-street Without, dandy roller for letter and note paper.

R. Harris and Sons, Leicester, a polka.—*Mechanics' Magazine.*

APPLICATION FOR EXTENSION OF PATENT REFUSED.—At the Judicial Committee of the Privy Council, on Thursday and yesterday, the cause of Messrs. Rawson and Donisthorpe, of Bradford, who had petitioned for an extension of Noble's wool-combing patent, was argued. During the proceedings, the petitioner's counsel proposed to examine the accounts, when Sir F. Thesiger objected to that mode of procedure, on the ground that the advances made by a gentleman named Lister, to whom the patent was to be assigned in the event of the successful issue of this application, could not be taken into consideration by the committee, as he had not been made a party to the petition within the meaning of the 5th and 6th William 1V., cap. 83, sec. 4. The council, however, decided upon admitting the evidence without then giving a decision upon the point raised by the learned connsel, and the case was adjourned.—The examination of the accounts was accordingly proceeded with yesterday. Eventually, however, the committee intimated that the extension of the patent could not be granted.—The application was accordingly refused.

SIMS'S IMPROVED COOKING STOVE.—As we have had several enquiries addressed to us regarding the improved cooking stove registered by Mr. Josiah Sims, of Tavistock, we are induced to give a description of the important improvement effected by the arrangement adopted by Mr. Sims. The external arrangement of this stove is of the ordinary character; but as regards the interior, flues are so arranged as to divide the oven into two parts, giving greater heating surfaces than as at present—the hot air passing through these flues into the chimney, or flue, by which the heated air finally passes off into the atmosphere. This oven is applicable to domestic cooking stoves generally.

NEW TELEGRAPH.—A new discovery has been made by Mr. Wm. S. Thomas, of Norwich, New York, called the electro-thermic telegraph. Letters patent were granted to Mr. Thomas on Feb. 12, 1850. This instrument is said to possess all the advantages of Morse and Bain's, and in some respects is far superior. Mr. Thomas does not use the magnet, which is the basis of Morse's electric magnetic telegraph, or decompose a salt like Morse and Bain's electric chemical telegraphs, but works on an entire new principle, never before applied to telegraphing, and is placed beyond all litigation. The principle of this invention is caloric, generated and controlled by the galvanic battery, and with the new manipulator the operator is enabled, it is asserted, to transact twice the amount of business in the same time as any telegraph now in use.

THE ELECTRIC TELEGRAPH IN FRANCE.—The committee of the National Assembly, on the bill for opening the electric telegraph to the public, has approved its principle. The committee is yet of opinion that it may give rise to great abuse, unless the use of the telegraph be accompanied by some restrictive measures. The clauses of the bill are to be considered on Saturday (this day).

A letter from Vienna states that the Government has just placed at the disposal of the public, the electric telegraph between that city and Oldersburg, so that an electric communication is now open the whole way between Vienna and Berlin.

NEW SUBSTITUTE FOR GUNPOWDER.—A communication has been addressed to the secretaries of the Literary and Scientific Society, from Mr. Napier, who has, on former occasions, so frequently contributed at once to our instruction and amusement by his valuable lectures on various branches of natural science, which announces the discovery of a new explosive substance, which he designates *white* powder; it has ten times the force of common gunpowder, and what is more surprising, is composed of the following simple ingredients:—One part yellow prussiate of potash, well dried; one part sugar, well dried; two parts chlorate of potash; these materials are finely ground separately, and then intimately mixed. The composition has not yet been tried in guns, &c. We understand that an exhibition of its power will be made at the next meeting of the Literary Society.—*Swansea Herald.*

STEAM NAVIGATION IN FRANCE.—In 1835, there were only six steam-vessels on the Rhone and Soane; according to an official return, there are now 55, with an aggregate of 8000 horse-power.

EMIGRATION TO CALIFORNIA.—Our attention has been directed to an advertisement in the *Birmingham Mercury* of the "Anglo-Californian Gold Mining and Dredging Company," stating that the second expedition of miners is now preparing to leave England by the *Diana* in lieu of the *Sacremento*, previously announced to sail in March. The capital is 50,000*l.*, to be raised in shares of 10s. each, and although the liability of the shareholders is not to exceed this, each share is *confidently expected within nine months to be worth at least* 50*l.* Now, it is rather singular that this company does not advertise in a single London newspaper; but, as we find them suddenly appearing in some provincial journal, with an agent for the particular district which it represents, we propose to make a few remarks on the report which is attached to this advertisement, purporting to be from, and signed by, James Palmer, engineer-in-chief, dated Santa Vaga Mines, Upper California, November 23, 1849. We do this to put parties on their guard, as the smallness of the amount per share may induce many of the uninitiated to part with 2*l.* 10s., the price of five shares (they do not issue less, and the money must be paid in full); and we do this, firmly believing, and unhesitatingly stating that belief, that the whole affair is an impudent and fraudulent attempt to delude people out of their money. In the first place, it is not stated where the *Diana* lies, or what port she is to sail from, or when; all applications must be accompanied by the amount of the shares, and no responsible names are given as directors or other officials. But the *mining report* is the richest affair, and our friend, Mr. Evan Hopkins, and other practical mineralogists, on perusing this mining Solon's production, will find they will have to go to school again, as their present knowledge of the production and usual appearance of minerals is entirely erroneous. Mr. Palmer, the engineer-in-chief, and his assistants, after building iron and wooden houses, and barely escaping drowning from the overflowing of the whole country for miles round by the rivers and streams, got the *water out of the shaft*, and found the gold *lode continue to increase as they got deeper*. He, notwithstanding *the influx of the water*, continued to raise large pieces of quartz, thickly impregnated with gold of superior quality; and, in the course of operations, he has found tin, nickel, and *sodium*; and, when the mine is in full work, these three metals alone will pay its expenses, leaving a large quantity of gold as surplus profit. With regard to the *sodium*, we expect he has found that in the shape of a chloride in the adjoining salt lakes; and, although a very valuable production as a condiment to the food of the engineer-in-chief's assistants, and tending to preserve their health in that highly salubrious country, we fear it will go but little way in a country where *salt* can be obtained probably for a half-penny per lb., in paying the cost of working a *gold mine*. Seriously, we have seen many bare-faced bubble companies attempt to delude the unwary; but a more audaciously conceived plan than this, got up by parties who are evidently ignorant of the nature of the metals they write about, to obtain money, we never witnessed; and we should say to all *our* readers—beware of the "Anglo-Californian Gold Mining and Dredging Company."

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.

Bank Stock, 7 per Cent., 207½ 6½
3 per Cent. Reduced Ann., 96¾
3 per Cent. Consols Ann., 96½ 5½ 6½
3¼ per Cent. Ann., 98¾ ¾
Long Annuities, 8¾
India Stock, 10½ per Cent., 265
3 per Cent. Consols for 11th Apr. 96½ 6 ½
Excheq. Bills, 1000*l.*, 1½d. 59s 61 pm.

Belgian, 4½ per Cent., 88 89½
Dutch, 2½ per Cent., 55
Brazilian, 5 per Cent., 90
Chilian, 6 per Cent., 102
Mexican 5 per Cent., ex Coup., 29¾
Russian, 5 per Cent., 106
Spanish, 5 per Cent, 17 ½
Ditto 3 per Cent., 35¾ ¾

MINES.—A fair proportion of business has been transacted during the week and inquiries for most of our leading mines continue unabated.

Advices from our local correspondents, as to the general prospects of the mines in their respective districts, are of the same gratifying character we have received for some time past.

Trelawny, Condurrow, South Frances, North Pool, East Pool, Mary Ann, and South Tolgus, continue in request, at quoted prices.

In Tincroft shares there has been considerable business done, and they continue in request.

There is an improvement in Virtuous Lady and Bedford Mines, which remained idle for some years, but were resumed a few months since; and on Monday, the 11th, the first sale of copper ore took place, amounting to 82 tons, realising 465*l.* 15s. 1d.

In Kingsett and Bedford we learn that a rich bunch of lead has been cut in the end driving south of rise, and that other parts of the mine are looking remarkably well.

At the meeting of North Roskear the accounts for December and January werepassed, showing previous balance, 2291*l.* 8s. 8d.; ores sold, 5501*l* 15s. 4d.; while the mine cost had been 4925*l.* 8s. 1d., which, after paying dividend of 5*l.* per share, leaves balance of 2167*l.* 10s. 11d.

At Botallack meeting, the accounts presented, showed—Costs, merchants' bills, &c., 4508*l.* 0s. 7d.; tin sold, 4283*l.* 8s.—leaving balance against the mine of 224*l.* 12s. 7d.

At the Wheal Elizabeth meeting, a call of 5*l.* per share was made, and the mine was stated as looking promising

The first general meeting of Trethevy Copper Mine was held at Exeter, when the several contracts for the erection of engine-house, purchase of engine, pitwork, &c., were confirmed by the committee, as well as the appointment of agent, and other necessary arrangements for carrying on the mine with spirit. The statement of accounts showed a balance of 177*l.* 8s. 10d. in favour of the company; but a call of 1*l.* per share was made, in accordance with the terms of the prospectus, for payment of the engine, and other requisite machinery.

At the Wheal May meeting, it appeared the costs for the two months' working amounted to 115*l.*—It was resolved to prosecute the mine with vigour, to erect a new pumping-engine, and to sink the shaft 30 fms. on the underlay of the lode.

At the Alfred Consols meeting, there appeared a balance against the adventurers of 494*l.* 1s. 1d., and a call of 1*l.* per share was made.

At the Guadalcanal meeting, although there appeared to be a considerable want of confidence on the part of the shareholders present at the commencement, the explanations given were satisfactory. Resolutions were passed for extending the payments on the preference shares until 8th of April, and for a special meeting on 3d of April, to consider a deed of registration now in course of preparation.

A partial meeting of the London adventurers in Stray Park Mines, met Mr. Vawdry, the manager, at Anderton's Hotel, on Thursday, when some suggestions were entered into, which will prove satisfactory to distant shareholders —particulars of which we hope to give in our next.

At the Wheal Whidden meeting, a call of 10s. per share was made; a subsequent meeting is to be held to consider future operations.

We have been favoured by an esteemed correspondent with the following brief observations on the mines in the western part of Cornwall:—

Levant is reported to have very much improved—a good lode of copper having been recently cut, and the tin lodes are looking remarkably well.

Spearne Consols continue improving, some important discoveries having been made since the bi-monthly meeting of the 27th Feb.

At Botallack some excellent tin ground has been dicovered, which is likely to pay well during the year.

Boswidden is looking more promising than she has for some time, and a good and productive lode has been discovered in the bottom level.

Penzance Consols continue in a very productive and highly promising position. Upwards of 4 tons 5 cwts. of the best mine tin was sold last week (raised in Jan.), realising above 253*l.*, and much more may be expected for the month of Feb. The first dividend may be expected in April.

Balleswidden is still looking remarkably well, and the shareholders are expecting an increased dividend at the next account.

West Wheal Virgin has been resumed, and if we may calculate from the returns made by the late company, a favourable result may be anticipated.

At East Balleswidden operations have been commenced, and, from the stones of tin broken from the adit level, affords a highly-encouraging prospect; and it is expected, from the general character of the ground, and its proximity to several rich and productive mines, that this mine will soon become a favourite in the locality. The western mines, on the whole, may be considered in a very productive and gratifying position.

Shares in the following mines have changed hands during the week:—Devon Great Consols, South Frances, Treviskey and Barrier, South Tolgus, Tincroft, Condurrow, South Basset, Trelawny, Trehane, Daren, Penzance Consols, East Gunnis Lake Junction, Herodsfoot, Stray Park, Esgair Llee, Gustavus, Pendarves, East Trelawny, Bedford United, East Tamar, Alfred Consols, East Pool, Wheal Trescoll, Keswick, &c.

In Foreign Mines, there have been several transactions in Copiapo, Imperial and National Brazilian, St. John del Rey, General Mining, Australian, United Mexican, Cobre, and Santiago shares.

The only advice from foreign mines is that of the Linares, whose prospects are highly satisfactory, as will appear by the report under "Foreign Mines."

HULL, THURSDAY.—The railway market has been much neglected since our last. At our present writing there is very little inclination to do business.

We learn, upon good authority, that smelting-works are about being erected at South Brent, adjoining the South Devon Railway, for the purpose of reducing iron, copper, lead, and tin, by the use of peat. Messes. Wilkins and Davey have, we are given to understand, undertaken to supply 500 tons of peat weekly. Mr. Edward Bagnall has been appointed engineer with Mr. Bush, and the principal parties interested are connected with the district, which promises to hold out every prospect of employment to a considerable extent.

At the Court of Bankruptcy, on Tuesday, in the matter of Benjamin Smith whose failure we noticed in last week's Journal, a petition in bankruptcy was adjudicated upon and bankruptcy declared before Mr. Commissioner Holroyd. Mr. Smith was a copper smelter and silversmith, having a manufactory at Bow-common, and establishments at Threadneedle-street, and Duke-street, Lincoln's-inn-fields. The debts and liabilities are said to be more than 100,000*l.*—Mr. Whitmore is the official assignee.

Mr. John Darlington, with Messrs. Fletcher and Watkins, for the South Lancashire coal proprietors, had an interview with the Right Hon. H. Labouchere on Monday, at the Board of Trade.

The rumoured failure of Mr. John Crosthwaite, of Liverpool, a West India merchant, has been confirmed. Mr. Crosthwaite was at one period possessed of large capital, which has been swept away by losses in the Lancashire and Yorkshire and Great Western Railways, of which latter company he was for some time a director. His present liabilities are understood to be considerable.

Mr. Charles Satterthwaite, a member of the Stock-Exchange, has been declared a defaulter, his differences being stated at about 10,000*l.* The failure is understood to have arisen chiefly from speculation in Peruvian Stock.

We understand that Mr. G. R. Robinson, the chairman of Lloyd's, has sent in his resignation of that office, on account of ill health, and that Mr. T. Baring at the request of the committee, has consented to become his successor.—*Times*

NEW LIGHTHOUSES FOR SEA REACH, RIVER THAMES.—Several cases, containing some improved dioptric apparatus, intended for the service of two new lighthouses, now in course of erection in Sea Reach, River Thames, having arrived to the address of the secretary to the Trinity Board by a steamer from France, a communication has been made by the secretary to the Treasury, to the proper authorities of the Revenue, desiring on the part of their lordships that directions should be given for their free delivery for that purpose.

MINING APPOINTMENTS FOR MARCH.

16. Fowey Consols pay and setting.
18. Fowey Consols sampling—Treviskey account.
19. East Crofty account, on the mine.
20. North Pool and other mines sampling—Great Consols account, on the mine.
21. Ticketing at Truro—Devon Consols and other mines.
22. United Mines account, on the mine—North Pool pay.
23. Pay day at Consols, United, Comfort, West Buller, Agar, Seton, Fowey Consols' Treviskey, and Tywarnhayle.
25. Par sampling.
26. Tresavean and West Seton account, on the mine.
27. Carn Brea and other mines sampling.
28. Ticketing at Truro—Consols, United, and other mines.
29. East Crofty setting—Tincroft pay.
30. Pay-day at Tresavean, Trethellan, Grambler, Condurrow, West Seton, Mary, South Frances, and North Roskear.

PRICES OF MINING SHARES.

BRITISH MINES.

Shares.	Company.	Paid.	Price.
1000	Abergwessin	9	6
1024	Alfred Consols	8½	15
1024	Arundell	2½	—
1024	AshburtonUnited Mines	9½	12
1624	Balleswidden	9	16
128	Balnoon Consols	42½	50
905	Barristown	5½	4 5
3650	Bawden	¼	¼ ½
6000	Bealbury	1	1
4000	Bedford	2½	5 5½
1280	Birch Tor & Vitifer	10½	6½ 7
8000	Black Craig & Craigton	—	5
8000	Blaenavon	50	10
5000	Blisland Consols	1	4½
1024	Bodmin Consols	3	3½
5000	Bodmin Moor Consols	1	3
60	Bosorn	5½	7½
100	Botallack	182	30
120	Brewer	5	2½
10000	British Iron, New, regis.	12	8
—	Ditto ditto, scrip	10	10
2400	Bryn-Arian	2	3
107	Budnick Consols	52½	12
1000	Callington	22	4½ 5
1000	Camborne Consols	7	3
20000	Cameron's Steam Coal	7	1
256	Caradon Mines	22½	10
256	Caradon United	24	5 8
256	Caradon Wh. Hooper	21	4½
1000	Carn Brea	15	115 120
1000	Carthew Consols	1½	7
113	Charlestown	220	—
500	Comblawn	5½	4½
128	Comfort	45	55 58
256	Condurrow	20	130
2560	Cook's Kitchen	14	7½ 8
1000	Coombe Valley Quarry	5	5
1000	Copper Bottom	7½	—
900	Court Grange	9	10
212	Craddock Moor	23½	5
128	Creeg Braws	120	30
500	Cubert Mine	12½	—
1000	Cwm Erfin	4	4 4½
1000	Daren	2	5 6
7100	Derwent	8½	5
502	Devon&CourtenayCon.	1¼	2½ 2¾
1024	Devon Great Consols	1	220 225
1000	Dhurode	2	5
182	Dolcoath	30	20
2560	Drake Walls	5½	3½
10000	Durham County Coal	45	9
3000	Dyfngwm	10	15
1020	East Alvenney	2½	5
2500	East Birch Tor	3	3
1024	East Buller	2	5½ 6
112	East Caradon	47	47
2048	East Crowndale	7½	1½
4000	East Gunnis Lake Junc.	½ ¾	1½ 1¾
128	East Pool	15 60	5 73½
9000	East Tamar Consols	19s	1½ 1¾
258	East Tolgus	1½	4½
94	East Wheal Crofty	125	65
128	East Wheal Rose	50	520
—	East of Scotland Iron Co.	5	1½
123	East Wheal Seton	14	10
1280	Esgair Llee	2	4 5
248	Exmoor Wh. Eliza	11	10 12
494	Fowey Consols	40	45
1024	Freidd Llwydd Mines	1½	3½
256	Garras	41	24
4000	Gen. Mining Co. for Irel.	1½	1½
2500	Georgia Consols (Tin)	½	1½
256	Gonamena	44½	16
128	Goonvrea	4	2
256	Grambler & St. Aubyn	80	6
96	Great Consols	1000	250
512	Gt. Wh. Rough Tor Con.	24½	18 20
6000	Growa Slate Company	5	5
1626	Gustavus Mines	3	2½ 3
256	Hawkmoor	12½	70
6000	Heigaston Down Con.	2	3 3½
1500	Hennock Silver-Lead	18s	5 5½
4500	Hennock Iron & Tin	21s	21s
512	Herodsfoot	16 13	13½ 15½
10000	Hibernian	12½	1½
1000	Holmbush	22	13
2200	Keswick	10	10
1024	Kingsett and Bedford	1½	4 4½
787	Kirkcudbrightshire	8½	5 5½
2048	Lamberooe Wh. Maria	9	4½
252	Lanarth Consols	—	7 8
256	Lelant Consols	47	25 26
160	Levant	—	160
1000	Lewis	17	9½ 10
1000	Llwynmalees	9	10
3600	Llynvi Iron	50	50
253	Lostwithiel Consols	23	10
6000	Marke Valley	10	¾ 1
5000	Mendip Hills	3½	3 3½
128	Metha	34	—
20000	Mining Co. of Ireland	7	4½ 5
256	New East Crowndale	3½	4½ 5
1024	North Buller	—	1½ 2½
100	North Pool	45	500
140	North Roskear	5½	150
252	North Wh. Leisure	1½	2
15000	Northern Coal Co.	23	2
128	Par Consols	55½	650
1000	Pendarves & St. Aubyn.	4	4
1248	Pengelly Tin	1	1
6201	Pennant & Craigwen	2½	3½
1000	Penybank and Erglodd	4	5
1024	Penzance Consols	22s 3d	4 4½ 5½
512	Plymouth Wh. Yeoland	6½	6
2500	Rhoswiddol & Bacheiddon	10	10
10000	Rhymney Iron	50	13
10000	Ditto New	7	6½

BRITISH MINES—*continued.*

Shares.	Company.	Paid.	Price.
2048	Runnaford Coombe Tin	1½	2½
9000	South Tamar	19s	3
128	South Caradon	5	200
1100	South Dolcoath	5	½ 1
256	Sth. Friendsh. Wh. Ann	30	28 30
256	South Molton	7	12 13
1024	South Plain Wood	1	5
300	South Speed	5	5
256	South Tolgus	16	132½ 135
256	South Trelawny	28½	8
2000	South Wales Mining Co.	1	1½ 2
128	South Wheal Basset	20½	540
124	South Wh. Frances	160	400 420
256	South Wh. Josiah	2	3½ 4
1000	South Wh. Maria	2½	1½
10000	Southern & Western, Irish	2½	4
280	Spearne Moor	30	40
128	Spearne Consols	10	60
94	St. Ives Consols	—	80
128	St. Michael Penkivel	5	10½
999	St. Minver Consols	1	6
1000	Stray Park	43	24 26
9600	Tamar Consols	3	6½ 7
10240	Tavistock Consols	½	½ ¾
1024	Tavy Consols	6½	1½
6000	Tincroft	7	13 13½
58	Tokenbury	170	10
240	Tolcarne	8	17 20
5000	Tregeare	1	1
256	Tregorden	3½	7 8
256	Trehane	1½	32 33
5000	Treleigh Consols	6	2½ 3
2000	Trenance	3	—
1500	Trenault Lime Quarries	2	3
96	Tresavean	10	95
120	Trethellan	5	21½
120	Treviskey and Barrier	130	230 250
512	Trethevy Copper	1	1½ 2
1000	Tyllwyd	2	2½
200	United Mines	50	150 160
256	Wellington Mines	25	15
128	West Buller	10	445 450
256	West Caradon	20	96
512	West Fowey Consols	40	12
1024	West Par Consols	5	—
2500	West Polgooth	5	5½
	Ditto Notes	1	1½
512	West Providence	9 16½	17 20
200	West Seton	45	150
120	West Trethellan	5	20
512	West Wheal Frances	1½	8 8½ 9
256	West Wh. Friendship	9	8
3845	West Wheal Jewel	12	2½ 2½ 3
256	West Wheal Tolgus	80	10
256	West Wheal Treasury	27½	15
1024	Whiddon Mines	4½	2
5200	Wicklow Copper	5	13½ ½
107	Wheal Adams	130	150
1000	Wheal Agar	—	6
256	Wheal Albert	10	1
240	Wheal Anderton	28	9 10
128	Wheal Ann	—	50½
512	Wheal Anna Maria	7	4
120	Wheal Bal	5½	10
256	Wheal Benny	14½	2
1024	Wheal Bray	11½	10
232½	Wheal Calstock	9	20
[illegible]	Wheal Courtenay	20	23
182	Wheal Elizabeth	9	16 22
256	Wheal Fortescue	15	12 13
100	Wheal Friendly	70	66½
388	Wheal Franco	27	11 12
1000	Wheal Grose	3s	5½
100	Wheal Henry	—	35 45
1024	Wheal Lawrence	3½	3½
112	Wheal Margaret	79	185 200
512	Wheal Mary Ann	5	37½ 40
5000	Wheal May	½	½ ¾
360	Wheal Oak	25½	5
3000	Wheal Penhale	1½	6
210	Wheal Prospect	4	7
120	Wheal Reeth	41	150
128	Wheal Rose	60	3
198	Wheal Seton	107	240 50
1036	Wheal Sarah	4½	7
180	Wheal Sisters	35½	5
512	Wheal Sophia	5½	6
128	Wheal St. Ann	30	35
1100	Wheal Trescoll	6½	7
280	Wheal Trelawny	7½	85 87½
250	Wh. Tremaine (St. Ervan)	9½	2½
1024	Wheal Tremayne	9½	7½ 8
267	Wheal Tryphena	40	62½
1000	Wheal Vincent	5	8
128	Wheal Vlow (Perranz.)	1½	1½
184	Wheal Vyvyan	—	60

FOREIGN MINES.

Shares.	Company.	Paid.	Price.
5000	Alten Mining Company	14½	2½ 2¾
15000	Asturian Mining Co.	15	2½
20000	Australian	4	5½
6000	Barossa Range	1¾	1½ 2
10000	Brazilian Imperial	23	5½ 5¾
12000	Cobre Copper Co.	40	33½ 34
10000	Copiapo Mining Co.	14	4½ 4¾
20000	General Mining Ass'n.	20	13 13½
4000	Guadalcanal	5	1½ 1
2000	Ditto Preferential	2½	2½ 2½
5000	Kinzigthal Mining Ass.	2	1½
5051	Mexican Company	59½	—
20000	Mexican & South Amer.	8	1 1½
5000	National Brazilian	30	5½
104000	N. Brit. Australasian	1	½
7000	Royal Santiago	10	7½ 8
11000	St. John del Rey	15	13½ 14
43174	United Mexican ...Av.	28½	6¾ 7½
10,000	Worthing (S. A.)	2	2½

** *We should feel greatly obliged by agents, or others interested, furnishing us with such corrections for our Share List as we may not have received through our usual channels of information—our object being, to present as accurate a list of prices as can be obtained—to procure which, we solicit the aid of correspondents in general.*

RAILWAY TRAFFIC RETURNS.

Names of Railways.	Length. 1850	Length. 1849	Present actual cost.	Price p. share	Last Div.	Traffic Returns. 1850	Traffic Returns. 1849
Aberdeen	64½	16	1,000,547	11½	—	£ 924	£404
Belfast and Ballymena	37½	37½	514,968	17½	5	512	482
Birkenhead, Lancashire, & Chesh.	15	19	1,256,306	37	5	792	710
Bolton, Blackburn, & West Yorksh.	14	—	914,521	5½	—	442	381
Bristol and Exeter	84½	75½	2,833,184	69	3½	3451	—
Caledonian	160	141	5,149,320	11½ ⅞	3	6165	4489
Chester and Holyhead	94½	84	3,358,217	10½ 9½	4	1351	1085
Dublin and Drogheda	35½	35½	778,565	26½	—	776	687
Dublin and Kingstown	7½	7½	395,915	—	6	640	606
Dundee, Perth, & Aberdeen Junc.	47½	47½	660,180	8½ ¾	3	1029	1002
East Anglian (Lynn to Ely)	61½	67	1,247,446	1½	—	729	709
East Lancashire	75½	24	2,938,887	8½ 9	5	2790	2004
Eastern Counties and Norfolk	322	295	13,139,156	7½ ¼	—	14553	13313
Eastern Union	95	50½	1,782,703	4½	—	1884	1203
Edinburgh and Glasgow	57½	52½	2,923,199	26½	4	3063	3291
Edinburgh and Northern	70	34	2,241,276	7	2	2004	—
Glasgow, Paisley, and Ayr	102½	74	2,574,330	49½	3	2900	2551
Glasgow, Paisley, & Greenock	23	23	852,846	12½	2½	982	1015
Gt. Northern & East Lincolnshire	143	—	5,138,756	7½ ½	5	2765	1830
Gt. Southern & Western, Ireland	188½	110½	3,552,589	27½ ½	6†	3959	3136
Great Western	230½	206½	11,867,042	58 7	4	13890	17926
Lancaster and Carlisle	90	70	1,476,102	53 2	4	3382	1865
Lancashire and Yorkshire	219	127½	10,063,862	42	3	11923	11318
Liverpool, Crosby, & Southport	13	—	84,455	5½	—	102	72
London and North Western	478½	428	26,251,635	104 5	5	40562	38211
London and Blackwall	5½	4	1,299,675	3½	1-12	605	442
London, Brighton, & South Coast	171½	162½	6,502,600	79½	4½	7656	7110
London and South-Western	242	194	8,651,353	63 63½	3½	8303	8240
Londonderry and Enniskillen	14½	14½	187,738	16	—	124	—
Manchester, Sheffield, & Lincolnsh.	160½	94½	6,598,260	14	5	5010	3155
Midland Company	492½	423½	15,133,779	38½ 9	5½†	20320	20186
Midland Great Western (Irish)	50	36½	725,332	24 3½ 3½	4†	4005	1061
Monklands	36	—	486,245	—	6	—	—
North British	135	83	3,649,055	9	3	3134	2699
Scottish Central	45½	—	1,364,228	13½	5	1236	852
Shrewsbury and Chester	48	23	969,618	10	½	1288	1238
Shropshire Union	30	—	—	3	—	407	—
South Devon	57½	29	1,927,686	8	5	1551	1413
South-Eastern	188	165½	8,666,007	16½ ½	3½	8518	6782
Taff Vale	38	40	879,110	—	6½	1793	1842
Ulster	36	36	723,829	45½	—	808	713
Waterford and Limerick	25	—	512,894	—	—	—	—
West Cornwall	13	—	207,772	—	—	229	227
Whitehaven Junction	12	12	169,852	9½	1	201	—
York, Newcastle, & Berwick	290½	242½	6,827,849	13½	2½	13007	11377
York and North Midland	260	234	4,983,618	17	1	6643	6781

LATEST CURRENT PRICES OF METALS.

LONDON, MARCH 15, 1850.

ENGLISH IRON. *a*	per ton.
Bar, bolt, & square, London	£5 15—6 0
Nail rods	6 15 0
Hoops	7 15 0—8
Sheets (singles)	8 15 0
Bars, at Cardiff & Newport	5 0—5 5
Refined metal, Wales*	3 5—3 10
Do. anthracite*	3 15 0
Pigs in Wales	3 5 0
Do. do. forge	2 15 0
Do., No. 1, Clyde ... *net cash*	2 4—2 4 6
Blewitt's Patent Refined Iron for bars, rails, &c., free on board at Newport*	3 15 0
Do., do., for tin-plates, boiler plates, &c., ditto	4 10 0
Stirling's Patent Toughened Pigs, in Glasgow	2 17—3 0
Stirling's Patent Toughened Pigs, in Wales	3 10—3 15
Staffordshire bars, at the works	6 0 0
Pigs, in Staffordshire	3 5 0
Rails	5 5—5 7 6
Chairs	4 0 0
FOREIGN IRON. *b*	
Swedish	12 10—13 0
CCND	—
PSI	—
Gourieff	—
Archangel	—
FOREIGN STEEL. *c*	
Swedish keg	14 15 0
Ditto faggot	15 0 0
ENGLISH COPPER. *d*	
Sheets, sheathing, & bolts, *p. lb.*	0 0 10
Tough cake ... *per ton*	88 10 0

Tile	£87 10 0
Old copper *e* ... *per lb.*	8½d 9d
Yellow Metal Sheathing	8½d
FOREIGN COPPER. *f*	
Russian, PSI	—
ENGLISH LEAD. *g*	
Pig ... *per ton*	18 5—18 10
Sheet	19 5—19 15
Pipe	19 10 0
Red lead	19 10 0
White ditto	25 0 0
Patent shot	21 0 0
FOREIGN LEAD. *h*	
Spanish, in bond	17 0—17 10
American ditto	—
ENGLISH TIN. *i*	
Block ... *per cwt.*	4 0 0
Bar	4 1 0
FOREIGN TIN *k*	
Banca, H. C.	4 3 0
Ditto, for Export only	4 0 0
Straits	4 0 0
TIN-PLATES. *l*	
IC Coke ... *per box*	1 8 0
IC Charcoal	1 13 0
IX ditto	1 19 0
SPELTER. *m*	
Plates, warehoused ... *per ton*	16 10 0
Ditto, to arrive	16 5 0
ZINC. *n*	
English sheet ... *per ton*	22 0 0
QUICKSILVER *o* ... *per lb.*	4s.

LIVERPOOL, MARCH 13.—The iron market is quiet, with a moderate demand, but prices, on the whole, are well supported. There are considerable orders for rails, which sustain the market. Scotch pig-iron has declined to 43s. 6d. to 44s. per ton for mixed Nos., free on board at Glasgow. Block tin has fallen 5*l.* per ton. Other metals are in good demand, without change in price.

MANCHESTER, MARCH 12.—Scotch pig-iron has again receded in price, and some business has been transacted since last report at from 43s. 6d. to 44s. per ton, free on board at Glasgow, and to 49s. 6d. per ton at Runcorn and Fleetwood. The attendance of country customers on 'Change to-day was smaller than usual, and the market closed rather heavily, there being a feeling very generally apparent among those connected with the trade which inclined them to look for lower rates. At a moderate reduction upon the current prices, however, it is very probable that a fair amount of business would be done.

GLASGOW, MARCH 14.—In pig-iron there is no change to note this week. There is a moderate amount of business doing, and the price may be quoted at 44s. 6d. to 45s. for mixed Nos.—cash.

— Comparative exports of pig-iron for the month of Feb., during the past five years:—

	1846.	1847.	1848.	1849.	1850.
From Broomielaw ... *Tons*	7695	9537	13,903	10,480	6233
Port Dundas and Kirkintilloch	9407	5499	12,127	5,160	2833
Total	17,102	15,036	26,030	15,640	9066

LEAD ORES

TICKETINGS FOR ABOUT 100 TONS (20 cwts.) NEWTONARDS LEAD ORE.
Douglas, Isle of Man, March 6.

Bidders.	*Price per Ton.*
Newton, Keates, and Co. (purchasers of 50 tons)	£11 16 6
Thomas Somers (purchaser of 50 tons)	11 16 6
Walker, Parker, and Co.	11 14 6
Combmartin and North Devon Smelting Company	11 10 6
Tamar Smelting Company	10 13 6
Sims, Williams, Nevill, and Co.	10 5 0

Sold at the White Horse Hotel, Holywell, March 14.

Mine.	*Tons.*	*Price per Ton.*	*Purchasers.*
Maesyrerwddu (Talargoch)	50	£12 3 6	Newton, Keates, & Co.
ditto ditto	54	11 15 0	ditto
ditto ditto	17	12 9 0	Mather & Co.
Coetia Llys	32	13 13 0	Walker, Parker, & Co.
Hendre	80	12 14 6	ditto
ditto	12	12 0 0	ditto
Talacre	100	14 0 0	ditto
Deep Level (Halkin Mines)	75	12 2 6	Newton, Keates, & Co.
Maesysafn	50	12 5 6	Walker, Parker, & Co.
Lloc Mine	50	13 13 6	Mather & Co.
Total tons			520.
Sold at Bagillt, on the 8th of March.			
Breadalbane	60	£10 18 6	J. P. Eyton.
Cairnsmore	40	11 11 6	Newton, Keates, & Co.
Total tons			100.
Sold in London.			
Tamar	78	£21 8 6	Tamar Company.
Holmbush	35	17 14 6	Ditto and Sims.

BLACK TIN.

Mine.	*Tons.*	*Price.*	*Purchasers.*
Lewis	9	£50 0 0	Williams & Co.
ditto	2	49 0 0	Daubuz.
ditto	2	49 7 6	ditto
ditto	1	45 0 0	Bissoe Company.

COPPER ORES.

Sampled Feb. 27, and Sold at Andrew's Hotel, Redruth, March 14.

Mines.	*Tons.*	*Price.*	*Mines.*	*Tons.*	*Price.*
Carn Brea	102	£4 13 0	Par Consols	86	£8 5 6
ditto	94	7 6 0	ditto	78	6 13 0
ditto	93	9 4 6	Levant	70	8 0 0
ditto	82	8 13 6	ditto	65	3 5 0
ditto	77	4 2 0	ditto	60	5 10 6
ditto	75	5 8 6	ditto	55	7 6 6
ditto	74	10 2 6	Wh. Buller	90	5 15 6
ditto	73	3 8 0	ditto	57	12 0 0
ditto	70	8 16 6	ditto	53	9 0 6
ditto	62	5 8 6	ditto	40	10 12 6
ditto	60	5 10 6	West Wh. Treasury	65	5 0 6
ditto	54	4 4 6	ditto	64	8 13 6
ditto	51	8 5 6	Wh. Mary	76	3 18 6
ditto	50	2 17 0	ditto	52	6 7 0
Tywarnhayle	98	4 4 0	Wh. Agar	70	4 15 6
ditto	87	2 12 0	Alfred Consols	33	4 15 6
ditto	78	3 19 6	ditto	20	10 9 6
ditto	46	8 17 0	Wh. Trenwith	32	4 2 6
ditto	39	4 9 6	Wh. Tremayne	30	4 2 0
ditto	37	4 10 6	Wh. Penhale	27	3 15 6
ditto	36	3 2 6	Carthew Consols	27	2 13 6
ditto	27	3 11 0	St. Aub. and Grylls.	17	5 15 6
Nancekuke	61	4 4 0	ditto	5	3 2 6
ditto	24	1 14 6	Trelyon Consols	11	6 6 6
Par Consols	111	6 19 6	Wh. Carpenter	2	7 7 0

TOTAL PRODUCE.

Carn Brea	1017	£6528 1 6	Alfred Consols	53	£367 1 6
Tywarnhayle, Nancekuke	533	2202 17 0	Wh. Trenwith	32	132 0 0
			Wh. Tremayne	30	123 0 0
Par Consols	275	2004 11 6	Wh. Penhale	27	101 18 6
Levant	250	1505 12 6	Carthew Consols	27	72 4 6
Wh. Buller	240	2107 1 6	St. Aub. & Grylls.	22	113 16 0
West Wh. Treasury	129	881 16 6	Trelyon Consols	11	69 11 6
Wh. Mary	128	628 10 0	Wh. Carpenter	2	14 14 0
Wh. Agar	70	334 5 0			

Average Standard ... £107 15 0 | Average Produce ... 8½
Average Price per ton ... £6 0 6
Quantity of Ore ... 2846 tons | Quantity of Fine Copper, 232 tons 3 cwts.
Amount of Money ... £17,187 1 6
LAST SALE.—Average Standard ... £113 6 0.—Average Produce ... 7½
Standard of corresponding sale last month, 110*l.* 6s.—Produce, 8½.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Mines Royal	188	£1235 13 4
Vivian and Sons	883	4948 5 0
Freeman and Co.	355	2417 12 10
Grenfell and Sons	320	2118 3 0
Sims, Willyams, and Co.	146	788 4 4
Williams, Foster, and Co	887	5388 14 6
Schneider and Co.	67	290 8 6
Total tons	2846	£17,187 1 6

Copper ores for sale on Thursday next, at the Royal Hotel, Truro.—Mines and Parcels.—Devon Great Consols, Wheal Josiah, Wheal Maria, Wheal Fanny, and Wheal Anna Maria, 1450—West Caradon 370—Fowey Consols 288—Wheal Friendship 213—Poldice 135—Bedford United Mines 119—Wheal Busy 42—Wheal Maiden 20—Wheal Jewel 16—Todd's regulus 9.—Total quantity of ore to be sold, 2662 tons.

Copper ores for sale on Thursday week, at the Royal Hotel, Truro.—Mines and Parcels.—United Mines 858—Consolidated Mines 684—Treviskey 505—Tresavean 383—South Caradon 264—Par Consols 254—South Tolgus 245—Trethellan 242—Perran St. George 220—Wheal Comfort 193—Treleigh Consols 125—Charlestown United Mines 69—Wheal Ellen 60—Wheal Henry 40—Grambler and St. Aubyn 24—Great Polgooth 12—Friendly Mines 5.—Total quantity of ore to be sold, 4183 tons.

COPPER ORES

At SWANSEA, for sale March 21.—Cobre 68, ditto 67, ditto 63, ditto 60, ditto 54, ditto 52 ditto 49, ditto 44, ditto 94, ditto 73, ditto 50, ditto 20.—Kapunda 39, ditto 31, ditto 23 ditto 18, ditto 17, ditto 16, ditto 13, ditto 12, do. 10, do. 8, ditto 9, ditto 7, ditto 65, ditto 60, ditto 35, ditto 34.—Burra Burra 60, ditto 53, ditto 26, ditto 22.—Cuba 63, ditto 60.—Ballymurtagh 30, ditto 3.—Guildford Slag 29.—Gloster Slag 15.—Cronebane 3.—Tigreny 3.—Total quantity of ore to be sold, 1460 tons.

NOTICES TO CORRESPONDENTS.

*** We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

"T. G. T." (Devizes).—Undoubtedly you must pay your call. Some remarks respecting the company will be found in another column.

Baron Alderson has decided that a creditor of a joint-stock bank cannot establish his claim against a shareholder, without having first sued and obtained judgment against the public officers of the bank.

"R. E." (Manchester).—On enquiry, we find that our prices for pig and sheet lead, in last week's Journal, were correct: we shall endeavour to add *pipe* to our list in future. We should feel obliged to our correspondent, if he would occasionally furnish us such information as may come under his notice.

"A. B." (Hampstead).—Apply to Mr. Manby, the secretary of the Institution of Civil Engineers, Great George-street, Westminster.

"An Engineer" (Leicester).—The Combined Vapour Engine was fully described in the *Mining Journal* of the 30th December, 1848.

"An Adventurer" (Regent's-Park).—Read the paper descriptive of "The Cost-book System—its Principles and Practice," published in the *Mining Journal* of the 13th Oct., 1849. See also the *Glossary of Mining and Smelting Terms*, and Budge's *Miner's Guide*.

"M. W." (Leith).—We should feel obliged for the information. We are at all times indebted to correspondents for furnishing us particulars of local occurrences.

"R. V." (Redruth).—Address a letter to the secretary of the company, at the offices, Old Broad-street.

"B." (Holborn).—The experiments were first published in a Latin pamphlet by the author, dated Copenhagen, July 21, 1820, under the title "Experiments on the Effect of a Current of Electricity on the Magnetic Needle: by John Christian Oersted, Knight of the Order of Danneborg, Professor of Natural Philosophy, and secretary to the Royal Society of Copenhagen."

"A Young Miner" (Greenwich).—The celebrated Burra Burra Mines belong to the South Australian Mining Association, whose offices are in Rundle-street, Adelaide. A detailed description of the property, with illustrations, appeared in the *Mining Journal* of the 30th December, 1848.

LEAD ORES—*Erratum*.—The sale of Cairnsmore ore, in last Journal, should have been 40 tons—it having been divided into two equal lots, and purchased by Eyton, and Newton, Keates, and Co.

GRANULATING LEAD.—In answer to an enquiry as to the best mode of granulating lead, the following plan will be found to answer:—A slow fire under a large iron pot—say, 3 ft. in diameter—will keep the lead in a low state of fusion. Stir it constantly with an iron rod, clearing the sides of the pot from the lead which adheres to it; then dip a large ladle in about every ten minutes, perforated with small holes. The lead, in a granular state, remains in the ladle, and the melted metal runs through the holes into the pot again. Two or three smart agitations of the ladle will facilitate the escape of the fluid lead.—WILSE BROWN: *Egglestone, Barnard Castle.*

THE DEVON GREAT CONSOLS MINES.—SIR: I was much pleased with the highly interesting descriptive paper and ground plan of Wheal Maria, published in your Journal on the 2d inst., and which must have afforded considerable gratification to all interested in mining operations: however, I do hope that your learned correspondent, Mr. Murchison, will further favour us, as he appears well able to do, by employing his able pen in affording the useful and scientific information which has been vainly solicited from Capt. Francis, in a former Number of your Journal—viz.: How, or by what means, this vein became filled with ore; showing the dip and cross-course of lodes, with the direction and dip of strata? What the strata was composed of, and why one cross-course shifted the lode, whilst others did not? Whether their action on each other caused the mass of ore to form at this particular spot or not? If so, their cause and manner of action, and about the depth they would continue to act and form ore? Does the quality of the ore improve as the depth increases? if so, at what per centage, and if the quantity increases as the depth increases. Is the chief source of water in the mine from the bottom and about the bunches of ore, or is it what is commonly termed top water? The temperature, and difference of temperature, in top and bottom water, and the effect it may have in forming ore? About what temperature is the air of regularly ventilated levels in the bottom of the mine? Is an high temperature of air and water in *copper mines* a strong indication of the continuance of the ore in depth, or not? Is the chemical formation of ore on the increase, decrease, or fixed? If on the increase, does the formation take place in the same proportion at bottom and surface? if not, where and what the difference may be, and what is the cause? Why one part of the lode should be so different from the other, when the whole, to appearance, is in the same water, and within a few feet of each other? Is the ore attracted to its own kindred from affinity? Is it decomposing other substances in the lode, and occupying its place? Information of this kind would afford much interest to your readers, and is what the mining public do expect from those scientific men who have lately entered the mining field, to establish a systematic principle of working, which, if found correct, will shortly become the miners' long sought-for "Guide." These reports should be carefully watched by the miner and adventurer—allowing the scientific community to take the lead, pointing out the most judicious method of working, and such lodes as capital might be invested in with some degree of certainty.—NICHOLAS HITCHENS: *Derry, March* 7.

NAMES OF MINES.—SIR: Some remarks have appeared in your Journal lately, by Mr. Symons and Mr. Ennor, on the impropriety of the names of mines being altered, in which I quite concur. I have of late been frequently puzzled as to the situation of mines whose names have been changed, and which, if published under their original designation, would be quite familiar to me. One, in particular, which I made inquiries about, turned out (the name being altered) to be one in which I was a long while interested. I can scarcely assign any other cause for such changes than the interest of those concerned; and you will be conferring a great favour on persons living at a distance, if you could insert in your Share List the parishes in which all mines are situated. The additional expense cannot be much, as it would not exceed 200 names, and would materially guide the incautious and unwary. If my request cannot be complied with, would you be kind enough to inform me in what parishes the following mines are situated:—Wheal Langford, Wheal Sarah, Wheal Vincent, East Wheal George, Barristown, Bedford United, Carthew Consols, Keswick, Runnaford Coombe, Tregorden.—N. HITCHENS: *Derry, March* 7.—[Among some alterations we shortly intend making in our Share List, the suggestion of our correspondent (which has been before recommended), is contemplated—Bedford United Mines adjoin Devon Great Consols, to the south-east—Carthew Consols, near Stoke Climsland; offices, Cross-street Manchester—Keswick Mines, in Cumberland; offices, 76, Cornhill—Runnaford Coombe, in Devon, near Buckfastleigh; offices, Black Eagle, Woolwich—Wheal Sarah, near St. Teath, Cornwall; offices, 4, King-street, Cheapside—Wheal Vincent, near Alturnum, between Launceston and Bodmin, Cornwall; offices, 4, King-street, Cheapside—East Wheal George, Walkhampton, near Tavistock—Barristown, Ireland—Wheal Langford, Callington, Cornwall.]

The communications of Mr. David Mushet, on the Manufacture of Iron, and Patent Law will be inserted in our next Journal.

*** It is particularly requested that all communications may be addressed—

TO THE EDITOR,
Mining Journal Office,
26, FLEET-STREET, LONDON.

And Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, MARCH 16, 1850.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

It will be gratifying to all interested in the mining and manufacturing interests of Lancashire to learn that Mr. JOHN DARLINGTON, Mr. FLETCHER, and Mr. WATKINS, are now in London, watching all the bills connected with railways and canals passing through the important coal field of Lancashire—the coal from the several collieries in which being transmitted to the large manufacturing towns of Manchester, Bolton, Preston, Wigan, Bury, Oldham, Heywood, Ashton, Rochdale, and the surrounding country has, doubtless, been, to a vast extent, the means of rendering them the most important and flourishing in the kingdom. The collieries here generally are worked with great economy—combined with which, however, in most of the new openings, all the improvements which practical experience and science can suggest are brought into play for the health, comfort, and security of the miner. We are daily looking forward for Mr. BLACKWELL'S report on the collieries of this district, as we cannot help thinking that many persons speak of the general management without making themselves thoroughly aware of its character, extent, or importance, or the intelligence generally possessed by the proprietors and agents. In any opposition, or support, which may be required respecting those important adjuncts to commerce—railways and canals—we generally find some Lancashire colliers taking part, and when on any subject effecting the interest of the district, no body of men are more persevering until the just ends have been obtained.

This session the Lancashire and Yorkshire Railway Company have a bill before Parliament, which, if sanctioned, will most injuriously affect the Lancashire collieries. It passes through the very centre of the basin from the Mersey to the Humber, with many tributary branches. By this bill they seek for power to raise all their tolls and fares 20 per cent.—to add 6d. on every first-class passengers' fare as a terminal charge—second and third-class, excepting parliamentary, to be in proportion. The Manchester, Lancashire, and Sheffield Company have also a bill, seeking for powers to raise fresh capital to complete their undertakings, but have among the clauses one giving them the right to charge 3s. for every *empty* boat which navigates the Ashton and Peak Forest Canal, and 3d. per ton for wharfage, in addition to the present rates. No parliamentary committee can ever sanction such powers as these, as the present scale of rates and tolls was introduced into the former bill by the companies themselves, after mature deliberation, and allowed to pass unaltered. If they have since entered into improvident guarantees, such as the North Union Stock, A, at 10 per cent., Preston and Bolton Stock, B, at 7 per cent., Preston and Wyre Railway 7 per cent., and others at 5 per cent.—created guaranteed preference shares at 6 per cent., instead of calling up the original capital, which would only have participated in the general dividends; and if they have recklessly constructed unprofitable branches and extensions, for the purpose of monopolising the traffic, they must take the consequences; for surely Parliament will never compel the coal proprietors, and others using these lines, daily and hourly as they do, to be again taxed, after having sunk their capital, and made all their arrangements, on the faith of the existing tolls and fares, to make up the deficiencies caused by their imprudence. Mr. WILSON PATTEN, the hon. Member for North Lancashire, appears quite alive to the importance of the subject, as will be seen from his motion, that all bills of railway companies, seeking to raise rates this session be referred to the railway commissioners to report again; and one also on Wednesday, that all bills for amalgamations of railways and canals be also referred to the commissioners.

To conclude our observations respecting the ASTURIAN forfeited shares, we turn to those proprietors to whom we alluded in our last Number, and who, irrespective of any consideration but that of punishing the authors of their loss, feel disposed to rush headlong into litigation.

We know it is the general impression, as well as the view of the Committee of Investigation, that there have been gross improprieties, wanton extravagance, and, perhaps, greater culpabilities in the management of this company; but this cannot be matter of recent surprise to any one. In our columns we have given insertion to incessant accusations and warnings. There can be no doubt that a more reckless improvidence could not have been exhibited in any case, than in the outlay of the capital of the Asturian Mining Company. Take all this for granted; and who really are the persons to blame for it?—the shareholders themselves. Out of a proprietary of 13,000 shares, we understand that, exclusive of directors' shares, there are only 300 registered shares. It was notorious that, in what are technically termed scrip companies, registered shareholders (save exceptionally) were alone allowed to exercise the rights of proprietors in attending and voting at the meetings—the object of the promoters being always in those cases to narrow the constituency, and leave the funds at the absolute disposal of the directors. The bulk of the shareholders used to hold their shares under the idea that no personal liability attached to them, unless they registered their shares. Fortunately, in the present day, no such principle can prevail, on account of the wholesome provisions of the Joint-Stock Companies' Act: and, indeed, formerly great misapprehension prevailed upon this subject; for the slightest act of proprietorship would be sufficient *prima facie* evidence to throw on the holder the onus of proving that his possession of the shares was that of an agent. But, to return from this digression, the shareholders in this particular company endeavoured to screen themselves from the just responsibility of their position in an adventure in which they had purchased shares; with the view of reaping advantages without the corresponding commercial risks, they refused to register, with few exceptions; they attended the meetings to hear, see, and say nothing; when they attempted to check the direction, they confided the control to a few inefficient, if not insincere, representatives; and they abandoned the management, up to the last moment, to the administration which had been proved to be so eminently incompetent, perhaps worse. Now, we defy any of the shareholders to say that we exaggerate the motive of their failing to register, in asserting that it was simply to be in a position to evade their liabilities as partners, whilst they maintained the right to claim a dividend, if such a godsend should accrue.

If the independent shareholders had registered, they might have dismissed the old directors, ascertained their true position, and have dissolved in proper time, or entrusted the management to efficient hands. Thus, it is plain the first object to blame, should be that unjust principle which has actuated the shareholders themselves; and consequently, when a man became possessor of a given number of shares in this company, holding them on that principle, and finding himself unable to meet his calls, the feeling which should influence him, ought to be that of the gambler at the *rouge et noir* table, when he has lost his last Napoleon. The chances of the game have been against him. He who gambles in shares—that is, he who buys shares liable to calls, without 20s. in the pound to pay them—is that gambler to all intents and purposes. We have no pity on such persons when they lose, and it ill becomes any such now to plunge himself and others into law-suits with the desperation of a ruined gamester, because he himself has failed.

We do not pretend, by this argument, to screen the directors from their misdeeds. If there were a sufficient case to render them liable, or if those who were manifestly guilty of misconduct were men who could substantially answer for any frauds or defalcations which might be proved against them, it would then be the duty of the shareholders combinedly to institute the necessary proceedings. However, from the vagueness of the accusations put forward on the 25th Sept., from the exculpations which were on that occasion made applicable to the principal directors, and from the opinions of the different counsel which we have seen, it is apparently impracticable to frame any case which will have the effect of giving retributive justice to the shareholders. But, supposing that such proceedings were commenced in this country, what would be the fruits? Nothing but loss to the parties engaged in them. The property would fall under judicial liquidation in Spain; everything would be sold to a disadvantage; the lawyers there, and new adventurers, would have the oyster, and leave the shell to the shareholders. We trust, therefore, that no one will venture rashly to plunge himself and the company into litigation and expense, until, at least, we have the final report of the Committee of Investigation, and the result of the arbitration which the meeting of the 25th Sept. authorised, for the settlement of the charges against the directors.

We observe, by the advertisements, that a general meeting of the company is convoked for the 26th inst.; and, from the form of the advertisements, it would appear the present management is not idle. A considerable amount of business is marked out, and it is especially worthy of note, that the direction is made the subject of a proposed reform. What object this can have in the eleventh hour, we are at a loss to imagine; it would have been quite as well to allow the old body to die a natural death under the hands of the physicians who have been called in, rather than, by any experimental infusion of new blood, to attempt a transitory revivification. We observe that the advertisement is signed by a *pro tempore* chairman, and we presume, therefore, there is meaning in the proposal, which, no doubt, will be fully and fairly discussed at the meeting.

In another column will be found a report of a meeting of proprietors in the GUADALCANAL SILVER MINING COMPANY, called through a requisition to the directors by ten large shareholders, in consequence of certain rumours out of doors, that many of the lately-created shares were not *preference* shares, from the calls having been paid after the specified date, and that the directors intended to apply the omission stringently, thereby depriving holders of the advantage which induced them to take them up. Whatever may have been the rumours out of doors (and we know there are generally some very groundless ones afloat among share jobbers, which it would be well to treat with the contempt they deserve), we think the proceedings of three or four of those present, who signed the requisition, as anything but tending to restore confidence in the minds of those who, having heard this rumour, had become much alarmed. Had three of these requisitionists—say Messrs. J. LA'MERT, BRIGGS, and PHILLIPS—attended by appointment a board of directors, to inquire into the real state of the case, it is clearly evident they would have had the most satisfactory information afforded them, both as to the preference shares and the state of the finances; after which arrangements might have been made for calling a special meeting for carrying out the intended re-arrangements for payment of the calls and adopting the Deed of Settlement. Instead of this, the meeting was, during much of the period, all clamour and accusation; the wildest charges were made against the directors, as to an intention themselves to appropriate the shares; that they had neglected the interests of the association; and insinuations were made that they had not paid their own calls. We were happy, however, to see the chairman, on whom apparently the whole discharge of this artillery fell, take it all in perfect good humour, and give a complete refutation to all the charges; while his explanations were fully satisfactory. Indeed, many of the most clamourous did not appear to understand the difference between a scrip and a registered company, and this association being the former, has led to all the difficulties by which the directors and the progress of the mines have been surrounded. The proceedings closed amicably, and we trust they will be productive of the most happy and satisfactory results.

The half-yearly meeting of the shareholders in the CHESTER AND HOLYHEAD RAILWAY COMPANY was held at the Euston Station, on Thursday, when Capt. MOORSOM, the chairman, said, he hardly knew whether to congratulate or to condole with the shareholders on the occasion. The Menai Straits may have been passed, the Government and the public may have been saved some 60,000*l.* a year in the packet service, and the passage to Dublin, from London, shortened by four hours; but the company itself had gained nothing, and worse than nothing, for they had not even the credit of having performed a great public service. The company had been put to an expense of 200,000*l.* towards the harbour of refuge at Holyhead, by the threat that, unless they did, it would be undertaken by Government. He said he should have been happy to have given every possible information to the meeting; but, as certain negociations were pending for the interests of the company, he must be silent. After a somewhat noisy discussion, the report was adopted, and the meeting made special; when a resolution was passed agreeing to a bill now before Parliament for powers to lease the line to the London and North-Western Company.

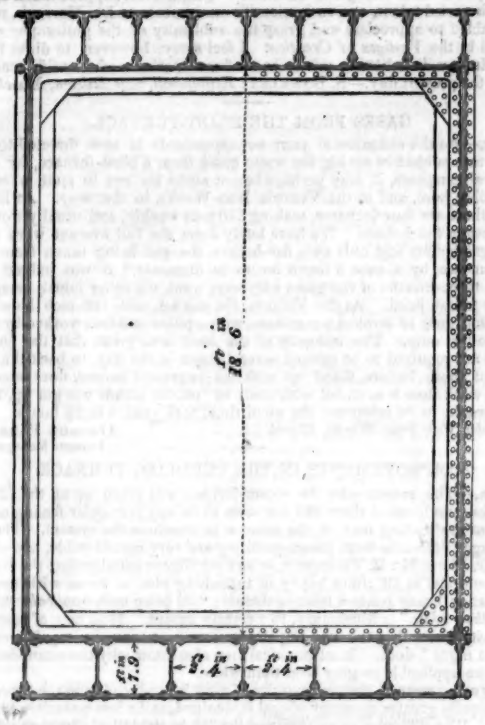
As closely connected with this railway company, a few observations on the interesting subject of the BRITANNIA TUBULAR BRIDGE, over the Menai Straits, will not be out of place. This, the greatest engineering work of the present age, is now completed, and proved to be immeasurably more effective for its intended purposes than the most sanguine ideas of its conceiver and constructors ever suggested, and which has thus become the model for an entirely new construction in all great engineering works. As (and, we think, very unwisely on their part) many of Mr. FAIRBAIRN'S friends have, in long printed discussions, and by other means, endeavoured to detract from Mr. R. STEPHENSON the just merit of the original conception which produced this huge and massive iron tube, for carrying the railway across the Straits; and while they allow to ROBERT STEPHENSON some little credit for giving the first crude idea, they claim for WILLIAM FAIRBAIRN the whole merit of the subsequent construction and completion, we shall endeavour to see how far this can be supported, taking Mr. FAIRBAIRN'S own history of the tubes, published by Mr. JOHN WEALE in 1849, for our principal guide.

The author commences by observing that, in the construction of the Chester and Holyhead Railway, two formidable obstacles had to be overcome. The deep and rapid tidal streams at the Conway and Menai Straits had to be crossed by bridges, which must necessarily be of extraordinary span, and of great strength; while no centerings, or other substructures, could be employed, from the fact of the Lords of the Admiralty requiring a clear headway of 105 ft. at high water for the passage of vessels. An arched bridge was, therefore, impossible, and the failure of more than one suspension bridge had proved the impracticability of running railway trains over them with safety. Mr. FAIRBAIRN says—"Some new expedient of engineering was, therefore, required, and an engineer bold and skilful enough to conceive such an expedient, and to apply it—*that engineer was found in* Mr. R. STEPHENSON—and that expedient is the one, the history of which it is the object of the following pages to relate." And again—"It was under these circumstances, having to encounter extraordinary difficulties of execution, and being compelled by so powerful a branch of the Government as the Board of Admiralty to abandon the ordinary sources of the engineer, that Mr. STEPHENSON conceived the *original idea* of a huge tubular bridge, to be constructed of rivetted plates, and supported by chains, and, of such dimensions, as to allow of the passage of locomotive engines and railway trains through the interior of it." So much for the idea, which, in itself, as the results have proved, was magnificent, and which Mr. FAIRBAIRN evidently thinks so himself. But Mr. STEPHENSON knew, as every wise man must have known, that, having innumerable railway and other heavy professional responsibilities to attend to, during a most harrassing parliamentary session, it was impossible for him to attend to those extensive and gigantic practical experiments, which became imperative to be performed before the idea of the proper *form* of this huge tube could be arrived at. What did he? In April, 1845, he consulted Mr. FAIRBAIRN, knowing him to be a man fully able to the task, and employed him to conduct them; and that gentleman proceeded with a perseverance, an energy of mind, and a determination to arrive at correct results, which has conferred on him the highest honour, and which will connect his name, in conjunction with ROBERT STEPHENSON'S with the Britannia-bridge, as long as that proud monument of engineering skill, enlarged by the extension of the railway system, sustains its position, and braves the storms of the elements which assail its mighty bosom over the depths of the Straits of Menai. It must, however, be borne in mind that Mr. FAIRBAIRN was the employed, ROBERT STEPHENSON the employer, up to May 13, 1846, a period of upwards of two years. The latter could have stopped the experiments at any moment, had he deemed it necessary; but throughout the whole correspondence he expresses his confidence in Mr. FAIRBAIRN, and his satisfaction at the continual results arrived at. At the date above-mentioned, the latter gentleman was (undoubtedly at the instigation of Mr. STEPHENSON) "appointed to superintend the construction and erection of the Conway and Britannia Bridges, in conjunction with Mr. STEPHENSON." It appears that about the beginning of 1848 Mr. FAIRBAIRN, to use his own language, "made use of certain hasty expressions, which, in calmer moments, would not have escaped him;" and "hastily-written notes were sent to Prof. MOSELEY and WILLIS, Messrs. BABBAGE and RENNIE, and others, but I am not aware that they contained any expressions calculated to give offence. It is much to be regretted that these letters were written, as they gave dissatisfaction to Mr. STEPHENSON, and eventually, in connection with other circumstances, led to my retirement on the completion and erection of the first Conway tube." These hasty expressions and sending notes took place in consequence of the construction of the model tube being opposed, and the experiments made upon it, to some extent, condemned as inapplicable by persons, from whom a different course of proceeding might have been expected, which were, doubtless, calculated to irritate a mind excited by the ceaseless considerations, hopes, and fears of this gigantic work. The result, however, is highly to be regretted. On the 22d May, 1848, Mr. FAIRBAIRN sent in his resignation and his account of claims, observing "he had no doubt Mr. STEPHENSON would certify to them." This unfortunate misunderstanding, doubtless, led to all the coolness which followed; his name seems since scarcely to have been mentioned in conjunction with the construction of the bridges. Mr. FAIRBAIRN says, at page 163—"I, however, disclaim any intention of appropriating to myself the merit of the undertaking, or of hurting the feelings of any person whatever, far less those of Mr. STEPHENSON;" notwithstanding which we have no doubt, had this unfortunate misunderstanding not occurred, had he proceeded to the present glorious issue in the same good feeling and kindly spirit, with a sense of mutual assistance from each other in the great undertaking as it commenced with, Mr. FAIRBAIRN'S name would have been *officially* associated with the results in a much more satisfactory way than it now is. As, however, we have said before, his name must be practically connected with the bridges as long as they stand, and the results have added an additional wreath to the laurels he had already gained as a highly scientific engineer. Still we unhesitatingly assert, which none who knows the true history of the case can deny, that Mr. STEPHENSON not only originated the idea, but conducted, as chief engineer, the experiments and construction from beginning to end; while in the voluminous correspondence on the subject, he always acknowledged the powerful assistance he obtained from Mr. FAIRBAIRN. Could an officer, who deli-

berately led off his regiment in the midst of an action, however much and however well he might have contributed to the plan of attack, or defence, claim the subsequent victory?

We cannot help thinking Mr. FAIRBAIRN, at the period when the unfortunate misunderstanding took place, began to mistake his position, and, in a moment of irritation, gave up, or rather prevented those public acknowledgments of his share in the transaction which he deserved, and which, under other circumstances, would have been awarded him. We must now conclude these observations, feeling much regret that we have felt it our duty, as public journalists, to have made them. We must, however, give an extract from the speech of Mr. STEPHENSON at the Conway entertainment (a speech on which Mr. FAIRBAIRN lays much stress, as stating numerous inaccuracies as to facts and dates), to show that at least the former acknowledged, to the fullest extent, the assistance he had obtained from the latter and Mr. EATON HODGKINSON. He said—"It was then I called in the aid of two gentlemen, eminent, both of them, in their profession—Mr. FAIRBAIRN and Mr. HODGKINSON. They had both distinguished themselves for elaborate series of experiments on cast-iron bridges, and although this was a different material, still, from their accomplishments and skill, they were well qualified to aid me in my research. They went into it heartily, and the result is what you now see under the walls of your venerable old castle." He then includes Mr. EDMUND CLARKE, a gentleman to whose talents, zeal, and ability he was much indebted, and concludes with the following unmistakeable and candid acknowledgment:—"He and the other gentlemen whom I have just named are the three to whom I feel deeply indebted, for having brought the theory I first broached to such perfection, and I thus publicly tender them my acknowledgments."

The following is a section of the tube, showing the mode of forming the cells at top and bottom, to withstand tension and compression, previous to the addition of the castings inserted to stiffen the ends:—



In resuming the subject of the ELECTRIC TELEGRAPH, we feel it quite unnecessary to apologise to our readers for the length to which we have already carried our observations upon this most interesting and engrossing topic. In our last article we spoke, without reserve or hesitation, of the great public evils resulting from a confirmed and exclusive monopoly in the transmission of telegraphic intelligence; and in our present, we propose, as far, at least, as space will permit, to consider the present condition and future prospects of this most important creation of modern philosophy. As an invention, the electric telegraph must certainly be placed side by side with the steam-engine, the railway, and the printing-press. We must not judge of it by what it is, but by what it will be; for, notwithstanding the startling realities which have been already achieved by the application of electricity to telegraphic purposes, the invention must even now be regarded as a mere sapling, which the hand of Science has but recently planted, and which, in good time, will put forth its branches, and bow down to the earth with the abundance of its fruit. But seven and twenty years have passed away since AMPERE, the great foster-father of electro-magnetic science—the acute, the persevering amplifier of OERSTED's magnificent discovery—made the first proposal for telegraphing signals and intelligence by the conventional deflections of the magnetic needle; and since that period what wonderful advances have been made in the practical realisation of this felicitous idea, and in the general development of electro-telegraphy; for, though the bud of promise thus faintly put forth was passed unheeded by the multitude, it became, in the eyes of the sanguine and ingenious, the stepping-stone to fortune, the germ of a great fact in the cause of civilisation, the guarantee of a new and mighty triumph in the advancement of human power and human intelligence.

In the pursuit of this favourite theme, invention has followed upon invention, with a rapidity unparalleled in the annals of human progression. The original thought of AMPERE was soon converted into a substantial reality, and that which, in the outset, was a mere theoretical convenience, became, in the end, an indispensable necessity. The cumbersome complexities of the early instruments gradually disappeared; the generation and transmission of voltaic force began to be better understood with more extensive practice; the battery was subjected to more complete regulation, while its power was properly economised, and more effectually secured from the disturbing causes of elementary interference; the 60 wires, which were necessary in the original suggestion of the French philosopher, were quickly reduced to 31 in the hands of ALEXANDER, and these again to six in the subsequent arrangement of WHEATSTONE; and, as time wore on, and competitors in the struggle for telegraphic improvement became more numerous, a still further and more important reduction was effected—the six wires lessened into four, the four into two, and ultimately the two into one! For this last great reduction in the first cost of the telegraph the world is indebted to the happy experiments of Dr. STEINHEIL, Professor of Mathematics and Natural Philosophy in the University of Munich, who, in the year 1837, erected a magneto-electric telegraph from Munich to Bogenhausen, and who, in the beginning of 1839, made the notable discovery that the ground might be used as one-half of the connecting chain.

M. FINLAISON, in a spirit either of resolute blindness, or of unpardonable partiality, has attempted, though without effect, to wrest the merit which attaches to this capital discovery from the grasp of its rightful possessor, and to give it into other hands; and in the course of his well-known "account of some remarkable applications of the electric fluid," he exclaims, in reference to this particular subject—"Very singular it is that no record of such a thing, *if it took place*, is to be found in *Poggendorf's Annals of Physics and Chemistry* for 1838 and for 1839." If M. FINLAISON, instead of ransacking the chronicles of Leipsic, had referred to those of his own country, his difficulty with regard to Dr. STEINHEIL's discovery would have ceased. Mr. STURGEON could have afforded him all the necessary information—(vide *Annals of Electricity for April*, 1839). We have merely noticed the subject, because we think it right thus publicly to give honour where honour is due; and, most unquestionably, the use of a single wire has done more towards the extension of the electric telegraph than any other single invention connected with the history of the instrument. It is very true that Bishop WATSON had previously used the earth as a part of the circuit, but the electricity employed in his experiment was frictional, and not voltaic. With regard to the mechanical details embodied in the various machines for transmitting and receiving intelligence by means of electricity, they are far too numerous to form any element in the present discussion. They may, however, be grouped into three classes—coloquial, electro-magnetic, and electro-chemical. The first-named machine operates by signs, which are registered in the mind of the observer; while in the two last the intelligence is printed by self-acting mechanism. In the colloquial telegraph, every required symbol is produced by the conventional and combined movements of a magnetic needle, operated upon by a current of electricity. There are many different forms of this instrument, but we doubt if there is one which, in simplicity and effectiveness, is equal to that patented by Messrs. BRETT and LITTLE, who were the first to operate upon two indicators by a single wire. Briefly, we believe this to be the case, for the following reasons:—The instrument is cheap; the source of voltaic power is self-supplying and constant; the indicators for signalising are motionless and free from all vibration the instant the electricity ceases to flow, and the lightning conductors are better arranged, and subject to regulation. If our conclusion, however, be wrong, we are open to correction. Proceeding onwards, we may observe, that the electro-magnetic printing telegraph is subject to many variations in the details of construction; and were we to enter into the particulars of each invention, we should never arrive at the end of the chapter. A most efficient machine of this description is the subject of a patent granted to Mr. J. BRETT. Let us observe, by the way, lest we be accused of favouritism in the selection of our illustrations, that the two Messrs BRETT abovementioned, are in no ways connected, either by relationship or otherwise.

We merely call attention to Mr. JACOB BRETT's invention, because of the comparative excellence of its several arrangements, and because a double degree of interest attaches to it at this particular moment, from its being the very instrument which is about to place Paris in direct and immediate communication with London. Through the persevering exertions of the gentleman just named, a submarine rope, consisting of seven distinct and well-insulated wires, will shortly repose upon the bed of the British Channel, and stretch, in one unbroken line, from Dover to Calais; and it is only right in this place to observe, that the project from the very beginning has received the ready and enlightened support of the PRESIDENT of the French Republic. The contract for completing the entire establishment of this important line is 450,000 fr. (18,000*l*.), and this includes the constructing and laying of the insulated wires from coast to coast, the purchase of ground, construction of buildings, materials, salary of engineers, law expenses, &c. The French Government has decreed to the patentee, for the space of 10 years, the exclusive right and privilege of transmitting, by electric telegraph, all messages across the Channel; and he, in return, has given a guarantee, that his telegraph shall, by the aid of a single wire, and of two persons only (the one stationed in France, and the other in England), be capable of printing, in clear Roman type on paper, 100 messages of 15 words each, including addresses and signatures, all ready for delivery, *in one hundred consecutive minutes*. To guard against accident resulting from the casual anchorage of vessels, the subject has been submitted to the attentive consideration of many eminent practical and scientific men, and it is now fully and generally admitted, that no two situations in the Channel offer such perfect exemption from any liability to accident or disturbance, as a certain point between Dover and Folkestone, on the English coast, and Cape Grinez, on the French coast; between these two points, therefore, the line of communication will extend. A paragraph is now going the round of the newspapers, to the effect that the insulated wires are in a state of forwardness, and are expected to be sunk across the Channel in the course of next month. This is incorrect. Though every exertion is being made, the submersion of the wires, and the completion of the line of telegraph, can scarcely take place before June. We await the result of this important undertaking with confidence and interest, and we trust, that when the line is fairly opened, the company will see the policy of adopting as liberal a scale of charges for the transmission of intelligence as the original outlay, and the circumstances connected with it may appear to warrant. In the electro-magnetic printing telegraph, the machinery is subject, in every case, to the effect resulting from a continuation of rapid movements in alternate directions. The registration of every letter or symbol requires that the printing apparatus should be suddenly brought into contact with the paper, and then immediately withdrawn; and it must be at once obvious, that there is a practical limit, and not a very remote one, to the velocity of these reciprocating movements. For this reason, the machine in question is necessarily circumscribed in the extent of its utility; and unless some radical alteration can be made in the general theory of its construction, we must, in the present condition of scientific knowledge, look to the *electro-chemical* printing telegraph, as the appropriate agent for rapidly transmitting general and extensive correspondence. In this last-named instrument the mechanical movements are continuous and uniform, and the only rapid reciprocations which occur, are exclusively confined to the electric current itself; and it is almost needless to say, that as electricity is, *practically speaking*, an imponderable body, essence, or affection, and, therefore, free from the inertia pertaining to ordinary matter, the objection to a high velocity of action which applied in the former case does not apply here.

The electro-chemical printing telegraph, from the extraordinary rapidity with which it is capable of communicating intelligence, would have been by this time in very general use, but for the practical difficulties with which it has hitherto been incumbered, and which are only now beginning to be surmounted. A more effective insulation is necessary with this instrument, than with the machines in common use; and the mechanical movements which take place at the transmitting and receiving stations must be perfectly isochronous. To give some idea of the great exactitude required in this last-named particular, we may perhaps refer to the marine chronometer, the most perfect and beautiful piece of horological mechanism which the genius of man has yet invented. Its improvement and elaboration have engaged the attention of a host of scientific investigators, from the period of HARRIS's great discovery to the present time; and, although in applying this instrument to ascertain the longitude at sea, an error of time, amounting to the 1-50th part of a second, would not, if appreciable, falsify the true position of the ship (even at the equator) by so much as 10 yards; yet, if this minute error disturbed the isochronous movements of the electro-chemical copying telegraph, it would be absolutely fatal. For this reason, when pendulums are employed as regulators of the machinery, they are simultaneously caught after every single beat by means of electro-magnetic attraction, and then again simultaneously liberated, so that any minute difference of time, instead of being allowed to accumulate into an important error, is corrected at the end of every vibration.

One of these telegraphs was tried for a short time between Manchester and Liverpool, but was not used there to any extent. Another is now in daily use between London and Manchester, and when the remaining difficulties are entirely overcome, and the powers of the instrument fully developed, its utility will become more generally felt—for messages and letters will, ere long, be taken to the telegraph office, precisely as printers' forms are now taken to the steam press; and, in all human probability, they will be run through the machine in one continuous stream, and simultaneously printed at the far station, with a velocity exceeding anything which has yet been attempted. Mr. BAIN lays claim to the invention in its present form, and charges Mr. BAKEWELL with having infringed his patent. There is no doubt that *of the two inventions*, Mr. BAIN's was first, but whether Mr. BAKEWELL has effected any radical improvement in the *modus operandi* we are unable to say.

It is pretty clear, however, from what has recently appeared in the *Mechanics' Magazine*, and in our columns, that as far as the chemical part of the business is concerned, both inventions are manifest and open piracies of the patent granted to Mr. ISHAM BAGGS, in 1841. We say this because the law, with reference to the subject, is well understood, and has recently received the stamp and impress of high authority. The Lord Chief Baron POLLOCK, in a late trial for an alleged infringement of a patent right, observed, "That if a man invented anything new, the value of which was not more than a single shilling, and that another individual subsequently came forward, and, by some addition or improvement, raised the value of the original invention to 20,000*l*., he must not use that man's idea; he must not tread in his foot-print, without rendering him compensation for so doing." This view of the case is clearly just, and of general importance. With regard to the use and improvement of the telegraph, our friends on the western shores of the Atlantic are striving hard to outrun us. In another column will be found a short description of a new discovery, which evidently relates to some application or extension of thermo-electricity to telegraphic purposes. The rationale of the process, however, is not very clear from the description given. Nevertheless, we are inclined to believe it. Nay, more. We believe, notwithstanding the ridicule that has been cast upon the subject, that Europe and America will be speedily placed in electro-telegraphic communication.

The history of human progress and civilisation is, for the most part, the history of brilliant thoughts and original conceptions, received by the mass of mankind with contempt and incredulity, and ultimately struggling through a long succession of bitter troubles into successful realisation. The evidence in support of this truth is unfortunately too imposing. The most noble inventions that ever entered into the mind of man, or contributed to the weal of the human family, have been received with the greatest amount of ridicule—have been the most cruelly persecuted. Not as an instance of persecution, but of the narrowness of human intellect, when it attempts to set bounds to the progress of man, we select a single illustration as appropriate to the purpose. In 1837, the commerce between Europe and America was exclusively maintained by sailing vessels, and the transit of the Atlantic by steam-vessels was boldly declared to be a physical impossibility by some of the first authorities of the day. In 12 short years the scene has changed; the problem is solved; the question is set at rest for ever; New York is now distant some 12 days' voyage from Liverpool; lines of magnificent steamers, of 600 and 800 horse-power are traversing the broad surface of the Atlantic with all but planetary precision, and carrying to and fro, with security and dispatch, the commercial and political expresses of the eastern and western worlds. So will it be with the electric telegraph; and wherever its services may be required, all natural difficulties will be conquered by that indomitable spirit of industry and perseverance which has been given to man for advancing his position and contending against those natural obstacles by which he is ever surrounded.

Before concluding the present article, we may as well call attention to the fact that the Select Committee on standing orders have decided that, in the case of the Electric Telegraph Company's Bill, for amendment of Act and regulation of capital, the *standing orders are not* to be dispensed with.

ACCIDENTS IN MINES IN 1849.

The subjoined table, compiled from the weekly accounts which appear in our Journal, of these deplorable calamities (in the absence of what may be called authentic records), we have no doubt will be perused with attention by those who take an interest in the miner and the collier in their perilous profession. From these it will be seen, that the total number of accidents last year was 406; the total of deaths and injuries, 908. Of these 567 were killed, and 341 more or less injured. The necessity of some measures being taken for the proper ventilation of collieries is evident from the fact, that more than one-half of the accidents have been occasioned by fire-damp and explosive gases, their number amounting to 465, of which 255 were fatal. In general, it has been supposed that a great many accidents result from machinery; but it appears only 16 deaths have occurred, and 23 injuries, being inconsiderable in comparison with the other items. The deaths from falls of rock and stones have been 154; injuries, 52. From falling in shafts—deaths, 90; injuries, 39. Accidents not specified—deaths, 52; injuries, 17: being about the average annual amount. But few accidents have occurred in copper mines, the great majority being in collieries and iron mines.

The number of deaths arising from the breakage of rope, or chain, during the 12 months, was 13, and two injuries sustained, which we believe to be far less than was actually the case, as such observation equally applies to other accidents—the instances forming not one-fifth part of those which actually took place, and of which there is no public record or registry; it being the object of colliery proprietors to withhold information on the subject. On comparing the number of accidents with those of 1848, it will be found that, in that year, there were 403 accidents, being 3 less than in 1849; and a somewhat remarkable coincidence—viz.: 567 deaths in each of the two years. In 1848, there were 239 injuries, being 102 less than in 1849; while the total number of deaths and injuries in the year 1849 is 908, compared to 806 in the previous year:—

	DEATHS.				INJURIES.			TOTALS.	
Date	Numbers.	Explosions.	Others.	Total.	Explosions.	Others.	Total.	Week.	Month
Jan. 6	9	—	8	8	—	6	6	14	
„ 13	2	—	2	2	—	1	1	3	
„ 20	8	—	8	8	—	2	2	10	
„ 27	9	84	5	89	—	3	3	92	119
Feb. 3	2	—	2	2	—	—	—	2	
„ 10	2	—	—	—	—	3	3	3	
„ 17	4	1	3	4	—	—	—	4	
„ 24	6	3	4	7	5	—	5	12	21
Mar. 3	6	9	3	12	9	—	9	21	
„ 10	3	13	—	13	2	1	3	16	
„ 17	12	—	6	6	4	8	12	18	
„ 24	7	1	4	5	—	2	2	7	
„ 31	8	1	8	9	—	7	7	16	78
April 7	14	5	7	12	9	6	15	27	
„ 14	6	1	6	7	7	—	7	14	
„ 21	4	3	2	5	2	6	8	13	
„ 28	12	2	6	8	2	4	6	14	68
May 5	12	3	9	12	8	—	8	20	
„ 12	11	—	9	9	2	3	5	14	
„ 19	10	—	8	8	—	3	3	11	
„ 26	7	3	12	15	1	12	13	28	73
June 2	9	—	2	2	4	5	9	11	
„ 9	11	32	11	43	1	4	5	48	
„ 16	8	—	6	6	3	—	3	9	
„ 23	5	2	3	5	4	1	5	10	
„ 30	14	35	11	46	62	3	65	111	169
July 7	10	3	3	6	15	2	17	23	
„ 14	12	1	12	13	—	1	1	14	
„ 21	6	11	1	12	2	1	3	15	
„ 28	9	3	14	17	—	—	—	17	69
Aug. 4	10	1	8	9	2	—	2	11	
„ 11	5	7	2	9	—	—	—	9	
„ 18	7	1	4	5	1	2	3	8	
„ 25	6	8	3	11	—	3	3	14	42
Sept. 1	6	1	4	5	—	3	3	8	
„ 8	3	—	1	1	6	1	7	8	
„ 15	13	5	12	17	10	1	11	28	
„ 22	3	—	2	2	—	2	2	4	
„ 29	7	4	9	13	1	1	2	15	63
Oct. 6	2	—	3	3	2	2	4	7	
„ 13	10	2	4	6	2	8	10	16	
„ 20	12	—	10	10	2	6	8	18	
„ 27	9	1	5	6	2	4	6	12	53
Nov. 3	5	—	5	5	—	5	5	10	
„ 10	9	1	8	9	—	1	1	10	
„ 17	13	1	12	13	5	4	9	22	
„ 24	8	1	8	9	4	—	4	13	55
Dec. 1	4	1	5	6	24	—	24	30	
„ 8	7	—	4	4	3	2	5	9	
„ 15	14	5	13	18	4	1	5	23	
„ 22	8	—	7	7	—	1	1	8	
„ 29	7	—	8	8	—	—	—	8	78
	406	255	312	567	210	131	341	908	908

ACCIDENTAL DEATH ASSURANCE COMPANY.

In the *Mining Journal* of July 21 last, we referred briefly to a company then forming for insurance, for a provision for survivors in cases of accidental death. We are glad to find that the company is now fully established, and have commenced business with the most flattering prospects of complete success. This company is formed on an entirely new application of the principles of life assurance—viz.: the assurance of the lives of all persons of every class against any description of violent or accidental death. The company's prospectus very justly remarks on the fact, that the liability of every person, be his pursuits in life whatever they may, to accidental or violent death, is so manifest and so obvious a truth, that it is scarcely necessary to dwell upon it, or to recite any of the numerous accidents to which our attention is constantly directed. No one ever looks into a newspaper without having his sympathy excited by some accident which has cost the life, or lives, of some of his fellow-creatures. There is scarcely an individual who cannot refer within the sphere of his own family, or acquaintance, for such particular instances—few who cannot look back to their own providential escape from imminent danger at some period of their lives. The principal causes of violent and premature death among many others may be stated to be gun-shot, and other wounds, horses, coaches, carriages, waggons, carts, railways, machinery, drowning, suffocation, burns, scalds, lightning, murder, and manslaughter. To these we may add explosions, such as the melancholy one recorded in this day's Journal at the Hounslow Powder-Mills, where seven lives have been lost; deaths in mines by explosions of fire-damp, falls of coals and roof, sudden inundations, *asphixia* from the effects of carbonic acid gas, and by "all the numerous ills that flesh is heir to." We understand that the owners of the Hounslow Powder-Mills were, at the time of the explosion, in treaty with the company for insuring all the men in their employment; but the arrangement had not been concluded, though it would probably have been so in a few days.

We would direct the attention of all persons engaged in any employment by which they are subject to such calamities to the company's advertisement, in another column—the payment to secure 100*l*. at death being within the reach of all in any employment. Among such persons we may name the miner, the collier, manufacturers employed in the working of machinery, or the production of articles entailing more or less risk, the builder, the mason, all mechanics, and labourers, to a certain extent, railway guards and stokers, those engaged in the military or naval service of the country—all, in their several vocations, are hourly and daily exposed to danger of one description or another, which the wisest are unable to foresee, or the most cautious to avoid; and we would especially invite the attention of master manufacturers, of the owners and lessees of collieries, mines, &c., of railway contractors, and others who are in the habit of employing large bodies of men, to the advantages which are now, for the first time, offered to them. With such parties the directors will be ready to treat, under special agreement, at reduced rates, for insuring the whole body of workmen so employed against death by accident.

We do not see that the operation of this company will injuriously interfere with the general principles of life assurance, which, being now so generally understood and duly appreciated by the public, will, doubtless, be as well supported as ever; while the specific purpose for which this company is established, and the low rate of premiums, render it within the reach of that numerous class, who can rarely be persuaded to spare their hard earnings for the higher and general rates of insurance, and will, we have little doubt, be appreciated as a boon to the public.

Original Correspondence.

PATENT LAW.

SIR,—Some opinions put forward in articles on this subject in late Numbers of your Journal, appear to me so decidedly erroneous—leading, as I conceive, in a completely wrong direction—that I am induced to address a few observations to your readers in favour of the principle of the patent system. The primary question raised by the writer is the relative merit and demerit of the present mode of rewarding ingenuity in useful art, which involves another question—viz.: the practicability of well supplying its place. Indeed, without some prospect of a satisfactory solution of the latter problem, inventors, at all events, and, perhaps, the public, as sympathising with them, are not likely to deal impartially with the first. With reference to the joint question, it must in the outset be remarked, that the writer's preliminary rule of public welfare overriding private interest (*salus populi suprema lex*), though of true metal, is too trenchant and formidable a weapon to be employed in the decision of most practical cases. It is the usual and ordinary interest of the State to secure to every man his own. Any exception to this must be justified by the special circumstances, as when a great national work (railway) is imperatively required, and the owner is *made* to sell his ground, and obliged to accept of a fair price for it. The analogy of this to the question of defining the amount of profit to be reaped by the proprietor of intellectual property, is obvious. To the writer's position—that the present law is the best possible, if exclusive grants are to be continued—I do not object, provided he will limit it to the broad general features of the law, and not defend the abuses in the forms and technical law proceedure; but I should attribute its value less to the original idea of the framers of the statute than to the extensions and modifications it has received from judicial exposition. Thus the judges had to exhibit some vigour in admitting the steam-engine to be a new manufacture; so, again, to overrule Lord Coke's denial of validity to a patent for an improvement; again, to nullify the clause referring to "hurt of trade" and "general inconvenience," which still occupies a place in the statute, but without the power of excluding (as it was meant to do) an invention which threw able-bodied men out of work. It is no reproach to King James's faithful Commons that they had not read Adam Smith; but, if the real meaning were to be enforced, it would make a pretty hubbub in the world of manufacture. But it is said that the whole system is wrong in principle, and prejudicial to the community; that it is rapidly overrunning every branch of industry, entwining industry as the cuttle-fish throws its multitudinous arms about its prey, and will soon cripple us in the race of production with our rivals abroad. The exactions of the exciseman are limited to the legal tariff; but the tax of the monopolist is as unmitigated as the toll levied by the feudal baron of the Rhine on the luckless merchant who sailed by his fortress.

Now, to begin with this latter point of amount of patent rent or dues; and I would remark that the word rent suggests a close analogy, which may be studied into much detail. Its amounts is not augmentable at the mere will and cupidity of the patentee. The new machine, or the new commodity, must, after repaying the use of capital employed, and the services of all concerned in its application, be cheap enough to displace its predecessor, and hold its ground against its rivals—nay, if possible, to deter them from competition—that is, for as long as may be; for, sooner or later, it is sure to be overtaken in its turn, and passed by; but competition is not the only motive to moderation. The patentee will prefer 21 customers at 1s. to one at 1*l*. He must look to demand. At an extravagant rate, he will, apart from any competition, effect no sales at all; while, on the other hand, the reduction of price, after a certain point is reached, will fail by the increase in the number of sales to make up the deficiency of profit on each. No very large number of buyers could be found for a vehicle, however luxurious, at 5000*l*.; and if only a certain number can keep coachmen and horses, there would be no more than that number were the price reduced to 5000 farthings. But there is a third check on the amount of remuneration; there is the fear of secret illicit evasion, or successful legal resistance. At a Custom-house duty of 30 per cent., smuggling becomes irresistible, and the lucre of the slave trade pays for all the risks that national squadrons can throw into the pursuit. Any one who is sceptical on this head, would, if he became a holder of patent property, be quickly satisfied that a grant of letters patent is not a means of leaving the consumer, *ad libitum*.

As to international competition, it might almost be sufficient to reply, that "who still will follow, needs must be behind." By the time a transplanted invention is fairly rooted, and naturalised abroad, some novelty will be superseding it at home; but, moreover, the amount of addition by patent right to the consumer's price is over estimated. People read that Neilson's iron smelting patent brought him in 5000*l*. a year; but they forget what a little difference it would make in the price of a pair of scissors. In the case of printed calicoes, this kind of problem was worked out, and showed that the extension of copyrights would add three farthings per piece of some 35 yards; and, notwithstanding the prognostications, we are happy to add that the establishment of the law did not prove fatal to the town of Manchester, nor the export trade in cotton manufactures; and similarly, it is quite clear, that patents, so far from having proved fatal to our commercial prosperity, have grown up pretty equally with it. It is, accordingly, for its opponents to produce some other mode of compensating inventors, which will work better. Some remuneration there must be. A man may miscalculate his chance of obtaining the prize, or meet with insuperable obstacles on the road to it; but without a prospect of something, he will hardly set out on the journey. Pure patriotism cannot, and ought not, in ordinary cases, to be relied on for intellectual labour and enterprise. The writer has not preposed any specific substitute for patents in the article referred to; but two plans occur to me as having been occasionally suggested, and to a very limited extent put in execution—Parliamentary votes, or grants of money and pensions, omitting stars, ribbons, medals, crosses, &c. The first point is to supply a man with a coat to wear; afterwards, you may stick decorations upon it. The latter of these two modes, as applied to the encouragement of men of science and letters, has, of late years, formed in the national expenditure one of the few items that meet with disapprobation on the score of scantiness; but it will be found that the recipients of this bounty are, for the most part, men who have added no distinct article to the list of industrial productions, and whose pursuits rather bear indirectly on all the arts generally, and that in an indirect and remote manner. Faraday's electrical researches, for instance, have not been without influence on some of the most popular inventions of the day, and the more copious fruits of the science remain for our successors to gather; but he but once, I believe, patented an idea (a gas consumer), and that has hardly a commercial existence. Such rewards are, in fact, bestowed on public services, which are too widely diffused to admit of definite valuation. The whole climate of the scientific region is ameliorated; but no particular plot is cleared for cultivation and capable of appropriation to the husbandman. The amount is very small. Unaided by the pleasure of the pursuit, and the honour to be won by success in it, few would be tempted to follow it; and you cannot increase it so as to rely on money payment, without falling upon the insuperable obstacle of a want of any standard of a steelyard to take the intellectual weights of your chemists and astronomers. Faraday may take his 300*l*. a year, and the rest of his reward in intellectual pleasure and scientific eminence; but if that amount be his market value, who is to gauge the contents of his brain, and obtain a rule for ticketing his contemporaries of the second magnitudes, the third, fourth, and so on, to the end of the chapter. In matters of handicraft work, if a workman produces an entire individual article, or a distinct effect on a certain quantity of matter, payment by the job is the best measure of his dexterity, and the best guarantee for his diligence; payment by time takes the place of piecework only where the labour is irregular and indefinite. But in the second of the modes suggested, the payment is for specific performances; but, instead of being a proportion of the gain, it is a positive sum, awarded by the supreme body or their delegate. The precedents for this plan are not like the other class of modern institution—such parliamentary grants having either declined of late years, or, at least, not kept pace with the progress of discovery; and they will all be found to be cases of an exceptional character. Accident had deprived the inventor of the paper machine of his reward; Gurney had advanced the art of steam locomotion, but the tide had turned aside its course, and left him on dry land. But suppose these exceptional cases made the rule, your list of patents for the year is 500—many of them are (from the desire to save expense under the present system) for two or more inventions; and apart from this the number is not likely to stop at 500; and there are several hundred registrations for utilities. Now, suppose the present heavy expenses, which, preceding the very grant of the patent, deter so many from crossing the threshold of the Patent Office, removed their place, supplied by a prospect of a snug sum of money in receipt; and what number of commissioners would it be reasonable to provide to hear the merits of the applications, appreciate the difficulties overcome, test the results produced, and recognise the value of the invention? Thousands would be stimulated to consume their time and abilities in the pursuit of casual scheming; and it would lead to more neglect of business, more dissipation of habits of mental industry, than the re-establishment of the lotteries. Even if the number were moderate, what chance have the decisions of a board of satisfying public or petitioner? With all the hindrances of the present system, a large proportion of patents fail. An experienced witness, before a committee of last year, said not one in five pays; but it is sure that one in ten succeeds. Now, if one-quarter of the inventions be accepted by the board, how many schemes would be supplied for the Humes and the Cobdens in the House, and the editors and correspondents out of it? Suppose they reject all that appeared, upon scientific evidence and anticipation, misty and visionary. At that rate, we should have had no railroads; for the Chat Moss was an insuperable obstacle to the very first proposed of any magnitude—no trans-Atlantic steaming, at least until a vessel of 1200 tons could be built to carry 1400; nay, we had had no improvement in steam itself; for Smeaton, the first engineer of his day, dissuaded Watt from the pursuit of his idea; no appeal could be allowed to Parliament, or that body would be deluged with appeals, for which, as Capt. Warner's invention exhibit, they have neither leisure nor ability. It may be urged that the inventor might receive a fixed share of the profits of working the invention; but it may be remarked that it is yet doubtful whether such a supervision can be efficiently exercised over the large amounts, numbers, and quantities that constitute railway book-keeping and management, and their comparative simplicity and routine. An individual, in a limited, but shifting, business, would baffle investigation; or, if you did compel him to hand over his excess of profit, over 10 per cent., he would take good care not to exert economy or industry enough to raise it to 11.

That the present system is not satisfactory to many inventors, is very probable; but this must be owing to one of two causes—either the idea not being put into operation has produced no profit at all, or profit has been made, but not by the inventor. The latter event (if not due to neglect, or misjudgment, on his own part) probably points to defects in the legal forms, and calls for their amendment, not the abolition of the system. On the other, if the inventor could neither work the plan himself, nor find one single individual willing to trust capital upon it, can he expect to have fared better with an official, or body of officials, whose main object is not to incur inconvenient responsibility? The grants that are on record, though from their occasional and special nature likely to have been well considered, are open to criticism—to Dr. Frome for a method of sweetening sea water, 5000*l*., and David Hartley, 5000*l*., for fire-proof buildings. Notwithstanding the efforts of these gentlemen, both elements retain their disadvantages. A public windmill to saw timber, 2000*l*.; and a scheme for bringing fish to London by land carriage. Both these may have been good in their way; but steam has supplanted them. The grants to two of the factory inventors—Cartwright, 10,000*l*. for his loom, and Crompton, 3000*l*. for the mule—are more satisfactory; and though Jenner was a fortunate man to get a total sum of 30,000*l*., the service he rendered to his species well deserved it; but then there is a grant of 5258*l*. for a discovery of nitric fumigation, and 5000*l*. to Mrs. Joanna Stephens for a medicine for the stone, subject, indeed, to her satisfying commissioners of its efficacy; but testimonial evidence on such matters is equally abundant and worthless, as a perusal of any quack's advertisement will show. The rewards for instruments and modes of ascertaining longitudes, were probably judicious; this, however, was a matter admitting of almost as ready and absolute verification as a problem in mathematics; it partook much of the nature of scientific discovery, and was hardly such as patent right could protect from infringement.

Perhaps the strongest argument against any such plan is the absence of any similar institution in other States, even, for instance, in France, where the central executive does so much, and so considerable a part of the population are in the receipt of Government salaries. It was proposed, in 1792, to employ an annual sum of 300,000*l*. in favour of artists, authors, inventors, &c., upon a graduated tariff; but the subsequent troubles put it aside, and, subsequently, patents resumed their place in the social system. Copyright, as in books, &c., is partly similar and partly different to the right by invention. As a general principle, it is admitted that the proper function of the law is not to patronise the author, but to protect him from wrong—to secure him that harvest which corresponds to the success with which he has reared from the soil of his intellect produce suited to the wants of the public. The argument of public injury by the unlimited monopoly price, applies in some respects, more forcibly here, for rival productions come less into competition. There may be several modes of spinning or weaving almost equally good, but there is no getting a substitute for Shakspere or Goldsmith; but it was urged in vain against the recent Extension Bill; and it may be noticed that a proviso of some of the earlier statutes, enabling the Privy Council to limit the price of all books, was allowed to go unrenewed some time ago; nor am I aware that in any single instance the amount of an author's receipt upon a copy has since been held up to public obloquy. A book, however (at least a good book), differs from a machine, or manufactured article, in being complete, requiring no cultivation or development—"one entire and perfect chrysolite"—whereas it is objected to patents, especially by men of science, that they discourage (that is, during the existence of the term) those modifications and minor improvements which are indispensable to the course of invention; that they congeal the art into rigid form at the point then attained; that, at all events, the future improver is at the mercy of the patentee; but it must be recollected that, by giving an owner to an idea, you secure one person, who has the strongest inducement to elaborate all the details, so that he may get the fullest benefit of the principle, and who, from practical experience, is the most likely of all persons to supply the aids that are required, and select the best variety; and it is his interest to deal equitably with any person who can assist him in doing this. Perhaps such a transaction might be advantageously regulated by legal means, the general principle being patented, a special new form, or condition, might be made registrable, but at all events the former party must not be sacrificed to the latter, who, without the principle for a foundation, could never have constructed the upper stories at all. All that can be said in favour of the improver against the inventor will be still stronger argument for the rights of the inventor against the public.

The advocates of both sides are zealous for justice to the ingenious, and the interest of the rest of the public, and both believe the two objects to be compatible; their difference is as to the most efficient machinery for effecting them; and, although the comparative antiquity of the patent system, the great names associated with it, the great inventions fostered, the judicial powers of the very highest order sometimes employed in its construction, and the cautious reluctance of legislators to meddle with the fabric, though all these do not place it beyond the reach of discussion, they certainly make a demand for wary dealing with a structure enclosing such valuable property, and entwined with so many interests; they assuredly throw on its opponents the burden of bringing forward a strong case against its demerits, and producing a substitute which will bear exposure to a searching examination.—T. T.: *Temple, March* 12.

PUBLIC BATHS AND WASH-HOUSES, &c.

TO THE EDITOR OF THE EASTERN COUNTIES HERALD.

SIR,—When in London last week, I made particular enquiries respecting the success of those important auxiliaries to health, "public baths and wash-houses," and I rejoice to find that their value is everywhere appreciated, and the numbers that resort thither increase in a remarkable ratio. In some instances the numerical amount is almost incredible, and I cannot doubt that, from the data supplied to me, they will eventually be found self-supporting institutions, and such was the inference of one of the secretaries. When I mentioned the all but total failure attendant on their introduction at Hull, they were astonished.

I view these most benevolent institutions as a boon and privilege of no mean value in our sanitary code. It is a trite and a true proverb—"Cleanliness is akin to godliness," and while I readily grant that the purgations by fire, and lustrations by water, under the Levitical economy, were adumbrations of "better things to come," it must be also conceded that the machinery was eminently sanitary. I hope that under the new arrangements the teeming population of Hull will no longer remain insensible to a sanitary provision so inestimable. Health is a blessing entitled to preservation, and worthy of being possessed.

The recent report of the Registrar-General most entirely confirms my views with respect to the remarkable connection there is between cholera and impure and unwholesome water. In those localities where the Thames water is uncontaminated by impurities, as at Hammersmith and Kew, &c., the victims to cholera amounted to from 20 to 23 only in 10,000 inhabitants; while in other districts, where the Thames is polluted with the contents of sewers, &c., as at Rotherhithe, and as far as the tidal influence extends (and mingles the noxious and lethal materials)—namely, Battersea Bridge, the ratio of victims is fearful and formidable, swelling in aggregate amount from 231 to 268 in 10,000 inhabitants! Is it, therefore, "a light thing" that I have done, in summoning public attention to that most impure and destructive element—the Hull water.

That cholera will revisit us, and it may be soon, I have no more doubt than the fact of existence, and this is the opinion of those *savans* with whom I have conversed. On its recurrence, it may be too late to grapple with our appliances. The "report on the Hull water," by Messrs. Aikin and Taylor is, to my mind, a most extraordinary and incomprehensible one! In this marvellous document the astounding fact is enunciated that there is *more* carbonate of lime, &c., in the filtered water than in the unfiltered! Aye, and as much organic matter too, within a fraction! The specimens submitted for analysis were taken at the close of last March, a period of the year most favourable for the absence of organic matter; judge, then, what it must be in the months of July and August, when, as I have clearly demonstrated, the Hull water is instinct with living organisms.

Portland-place, Hull, March 5. ——— J. MURRAY, Ph. D.

SOURCE OF INFUSORIAL LIFE.

SIR,—I have read a portion of Dr. Murray's article in last week's Journal, under the above head, with much surprise and regret. In speaking of the detection of ova of animalculæ in chalk, and the development of infusoriæ by the aid of summer heat, &c., he says—"Facts akin to these, and somewhat similar experiments, at once extinguish the sceptical notion of equivocal production, or spontaneous generation, and reveal the source of error in Mr. Crosse's experiments as to insect creations, so greedily pounced upon by the atheistical author of that mass of error and gratuitous assumption—*The Vestiges of Creation*." I cannot but suppose that a mind of such varied talent, and such scientific attainments as Dr. Murray's, must be enabled to appreciate and grasp the sublimity of the philosophy contained in the *Vestiges of Creation*. I feel sorry, however, to differ from Dr. Murray, in believing this to be the finest specimen of scientific reasoning of the present day.—S. BOWKLEY: *Ettingshall, near Bilston, March* 12.

GASES FROM THE BLAST-FURNACE.

SIR,—As the attention of your correspondents is now directed to the important subject of saving the waste gases from a blast-furnace, for economical purposes, it may perhaps be not amiss for me to state what we are doing here, and at the Victoria Iron-Works, in that way. At Ebbw Vale there are four furnaces, making 540 tons weekly, and usually worked with seven fire-boilers. We have lately done the full average work with four gas-boilers and only two fire-boilers, the gas being taken from but one furnace, by a tube 3 feet 6 inches in diameter. It was judged that about three-fourths of the gases only were used, the other fourth escaping at the funnel head. At the Victoria, the engine, with 120-inch blowing-cylinder, goes 18 strokes per minute, with a pillar of 3 lbs., worked by four gas-boilers only. The intensity of the heat is so great, that the boiler-doors are required to be opened several times in the day, to back the gas. One of those boilers, fitted up with an improved burner, does one-half more work than it ever did with coal; in fact, the steam was got up, from cold water, in 70 minutes; the usual time, with coal, was 2½ hours.

Ebbw Vale Iron-Works, March 13. GEORGE PARRY, Furnace Manager.

IMPROVEMENTS IN THE PUDDLING-FURNACE.

SIR,—The reason why the steam-furnace was given up at the Blaina Works, was because there did not seem to be any particular feeling on the part of the leading men of the concern to continue the system. The advantages derivable from steam-puddling are very considerable, and either to Mr. Plant, Mr. B. Thompson, or any intelligent enquirer into the matter, I should feel at all times happy in furnishing him, or them, with any information I may possess relative thereto; "*its being more applicable to grey iron than white*" is illusionary, to a certain extent. Most men of common capacity know that the sun imparts greater heat than the "pale empress of the night" does. Most practical men also know why the steam-furnace is more applicable to grey iron than white.

By using steam a greater quantity of work is produced from the furnace, a consequent greater economy of coal is obtained, and a less quantity of bricks used. The difficulty in getting puddlers to be careful of the steam-pipes, and of their heat, is an obstacle which has to be removed by diligent superintendence. If the plan were only wisely persisted in, and small coal used for puddling, the saving must be very considerable. I have no doubt that, had the valuable life of the late Mr. Thomas Evans been spared unimpaired up to this period, puddling would have reached to a greater perfection in this country; but I am fearful that some of its "hidden mysteries" are, for a period, by this circumstance, retarded from being developed.

Dowlais. March 13. ——— OUISEAU DU PARADISE.

IMPROVEMENTS IN THE PUDDLING-FURNACE.

SIR,—I have this day seen a sample of iron made by Mr. Reuben Plant's patent process, on the 5th instant, at the Whittington Iron-Works, in the presence of George Thompson, Esq., of Congreaves Iron-Works, near Dudley; and I think it due to the patentee to state, that he may challenge the world for quality. The piece I saw was made from grey pig-iron, in 65 minutes, inclusive of charging, puddling, hammering, and rolling into bars; the yield, 3 cwts. 3 qrs. 11 lbs. from 4 cwts. of pigs. This was effected without the aid of a preparatory chamber; had one been used, the same results would have been produced in 50 minutes. I recommend all those interested in the manufacture of iron to visit the Birmingham Banking Company's Bank, at Dudley, where they will see a sample of iron, and a model of the furnace, which, I think, will satisfy the most sceptical of the value of the invention.

It is not my intention to argue with Mr. Jones the merits of Mr. Reuben Plant's patent over that of Sir J. J. Guest; yet I think it due to that gentlemen to notice his last letter, in reply to which I cannot help reverting to my letter of the 27th Feb., wherein I stated, when speaking of Sir J. J. Guest's patent, that experience soon told them that it had the effect of lowering the heat, and that they had mistaken the effects to be produced by it; and that is the only reason I can surmise for the abandonment of its use at the Dowlais and Blaina Works. I recommend Mr. Jones to give Mr. Reuben Plant's patent a trial; and, if he finds, by its use, that he can accomplish the results sought to be produced by Sir J. J. Guest's patent, which ended in a failure, I think, from the tone of his writing, that he would not fail to give merit to whom it is due. The great failing amongst us generally is that we are not pleased to see others accomplish that which we have failed to establish ourselves. A CONSTANT READER.

Dudley, March 13.

IMPROVEMENTS IN STEAM NAVIGATION.

SIR,—Steam navigation seems lately to have had an *increased share of interest*, for an excitement appears to have got up for emigration to Australia, holding out the hope of reaching that place within a more reasonable time than heretofore, comparatively shortening the distance of the voyage considerably. This excitement has caused a particular inquiry into the service of *paddle-wheels*, as to their utility deserving to have a continued countenance applied to them for yielding the power of propulsion *effectively*; but it is found, that in the revolution thereof, there are always more of the *boards* in a *retarding* than *propelling* position, making an immense *resistance*. The fact is, such boards are only propellers from the time of entering the water, until they reach the *bottom centre* of the said wheels, but from which time they become *retarders*, and keep increasing in their *resistance*, until they quit the water again on the contra side, and occupying a period of time longer on this side than the other, before the impediment ceases; hence *steam-power* becomes most wastefully applied, yielding, perhaps, not more than about *one-fourth part thereof* to be applied *effectively*; from whence *steamers* governed by *paddle-wheels* sustain the reproach of being more like *lumber vessels* than *cargo vessels*, if destined for long sea voyages. Nor does Smith's *screw propeller* make much improvement, nearly the same engine-power continued, and, therefore, not much advantage from that innovation; but in 1841, Lupton's *propeller* was tested against Smith's *screw* at the West India Docks, in 10 feet depth of still water, using a *weight* for the motive-power running down through this still water. It was found to have a power at least double that of the *screw*, propelling 12 feet distance in the same time that the screw could only propel *eight feet distance*, giving a full demonstration of this increase of *power*. He has still further improved the plan, and has given full proof of its merits, as being a *propeller* exclusively, without being a *retarder*. These merits were stated to the Great Western Company at Bristol, in 1841, exhibiting a *model* of it also to them, and it was so far agreed to, as to be actually applied to the *Great Britain* vessel, in 1843, with certain

modifications of their own, at that time finally rejecting Smith's *screw*. The unfortunate stranding of the *Great Britain* on the coast of Ireland, in 1846, may be regarded as a most disastrous *calamity*, that event obscuring all those bright prospects that had previously been so flatteringly presented for improving the *science* of steam navigation. Opinions had run so high in favour of the *Great Britain* vessel before she left Liverpool the last time, that she was *likely to reach New York in about a week*, and some proof was given of her *tremendous speed*, on the first day she commenced her voyage, as to get eight or ten miles ahead of the captain's reckoning, casting her upon that coast sooner than he was aware of, and causing the *unfortunate occurrence*. JONATHAN HERNER.

Water-street, Blackfriars, March 13.

ON STEAM-BOILER EXPLOSIONS.

SIR,—The numerous boiler explosions that take place in this country, which are not unfrequently attended with destruction of life and demolition of property to a serious extent, are sufficient to warrant a careful examination of the subject. There is much conjecture as to the causes which give rise to such catastrophes. Some hold that they are generally attributable to the over-pressure of steam, and the overloading of the valves; others to the water having been allowed to become too low, and the plate red-hot, water being thrown upon these either by the feed-pump, or simply the movement of the machine (as in locomotive and marine-engines), a sudden evolution of steam taking place, sufficiently powerful to produce explosion; others, that the steam and water may be decomposed by coming suddenly into contact with hot plates, and instantaneously generating a gas (hydrogen), possessing all the explosive force of gunpowder; or, according to another opinion, that they may be attributed to the property which liquids possess under certain conditions of assuming the form of a globe or spheroid, when thrown upon a substance which is at a high temperature. It has been remarked that "occasional explosions" will occur; yet it is certainly very desirable that they occur as rarely as possible; and the way to make them less frequent, is to profit by the circumstances of all preceding instances. And if, by applying these suppositions to the late fatal explosion which occurred near Black Banks, on the York, Newcastle, and Berwick Railway, the cause can be traced out and placed before the public in a clear and intelligible form, some progress will have been made.

That the explosion in question was not caused by over-pressure of the steam and the overloading of the valves, is pretty evident, from the fact that steam of a comparatively low pressure was sufficient to perform the duties required of the engine during the trip, as the load was light, the distance short, and the gradients very favourable. That it was caused by "the pressure being too much, and afterwards an explosion occurred from the generation of gas," an opinion stated by one of the witnesses before the inquest, is altogether inadmissable, as there are so many conditions necessary before hydrogen gas can be formed. In the first place, the whole of the water in the boiler must be separated into its simple elements by decomposition, before any gas can be in existence; and it must be borne in mind, that pure hydrogen is not explosive; there must be a mixture of oxygen with it to give it an explosive quality. And, moreover, the presence of a certain amount of steam would prevent an explosion. It would be difficult to conceive the possibility of an entire absence of steam in the boiler and cylinders at the time of the explosion. The condition, besides, necessary for the decomposition of water is, that the iron be at a very high temperature—high red-heat, and that it seize upon and combine with the oxygen of the water—the hydrogen would thus be set free, but no oxygen would be liberated. Now, the difficulty is to account for the presence of the oxygen necessary to form the explosive mixture with the hydrogen liberated. There would also be required the presence of some carbonaceous particles upon the heated plates, raised to a temperature sufficiently high (white heat) to ignite the explosive mixture when once formed. If the conditions which are necessary to account for boiler explosions by the formation of gas were more carefully examined, we should not have this fashionable hypothesis so often advanced.

Let us now see whether, by a careful investigation of the matter, we may not arrive at the conclusion which appears to be more rational—namely, that the crown of the fire-box, in consequence of a deficiency of water in the boiler, got heated to a temperature sufficient to destroy the cohesion of the plates, when the excess of steam, generated by the water passing over them, in consequence of the motion of the engine or pumps, together with their sudden contraction, forced it inward. The moment this took place, the remainder of the water in the boiler would come in contact with the large mass of fire in the fire-box, an enormous quantity of steam would be instantaneously evolved, sufficiently powerful to free itself from every obstacle. In the absence of any proof to the contrary, the probability is that the boiler had been low of water at starting with the train, and by the action of the pumps the water had been made to flow over the top of the fire-box at the time of the accident.

The evidence of R. Ranson and J. Lee, working coppersmiths, goes to prove that the top of the fire-box had been heated at the time of the accident. The evidence of Mr. Edward Fletcher, locomotive superintendent of the line, a gentleman of considerable experience, is also to the effect that the plates had been overheated some time or other. The question naturally arises, would a lead plug have prevented the explosion from occurring under the circumstances? The probability is, that it would not, as there are several cases on record where explosions have taken place under its protection—the *Telegraph* steamer, at Helensburgh, and the *King Cole* locomotive-engine, on the Ardrossan Railway, are amongst the most remarkable. The lead plug becomes oxidised, and requires a very high temperature to fuse it. To set aside the opinion that the explosion might have been caused by the water being thrown into the spheroidal state by the over-heated plates, it will only require the conditions necessary to bring about such an occurrence, to be stated—namely:

"If heat be applied to water contained in an open boiler, the temperature of the water will, of course, continue to rise until it reaches 212°, when the elastic force of the steam is sufficiently great to overcome the pressure of the atmosphere, and the water boils. If the heat be still continued, the whole of the water will boil away, leaving the vessel empty; but as long as any liquid remains, the temperature of the vessel never rises above 212°, owing to the absorption of heat by the steam. As soon as the boiler, however, is empty, its temperature, of course, rapidly rises, and may reach a red, or even white, heat, provided the furnace be sufficiently powerful. If water be now gradually thrown into the over-heated boiler, it will at once pass into the spheroidal state, will continue at 205°, until, from some cause or other, it is permitted to come in contact with the heated surface, when violent ebullition immediately takes place, an enormous quantity of steam is instantaneously produced, and if the vessel be a closed one, as is the case with steam boilers, an explosion is the almost inevitable result."

Viewing the circumstances connected with the explosion, the most legitimate conclusion is, that it was caused by the over-heating of the plates composing the top of the fire-box, and, consequently, the reducing of the cohesive strength of the plates below the elasticity of the steam in the boiler. This danger is thought to be lessened by employing more than one safety-valve, and by enlarging the capacity when one only is used, and there cannot be a doubt but that this is to a certain extent correct; there must at least be a sufficient egress provided for the superfluous steam generated. To this condition add the no less important one, that the engines are under the management of well-trained and intelligent drivers.—JOHN A. HASWELL: *Gateshead, March* 4.

P.S.—Perhaps it is unnecessary to state, that the evidence given before the jury clearly proves that the explosion was not to be inferred from defect in construction of the engine.

INJURY BY AN EXPLOSION OF GUN-COTTON.—At the South Wales Circuit Assizes, held on Friday, at Swansea, before Mr. Justice Williams and a special jury, the above case was tried. It was an action brought by the plaintiff, Mr. Rhys Hopkins Rhys, a young man of great scientific acquirements in the mining districts, against Messrs. Hall and Co., well-known traders in gun-cotton, to recover compensation for the loss of his sight through an explosion of gun-cotton. The damages were laid at 10,000*l*. It appeared from the evidence gone into that the plaintiff was invited by the defendants to witness divers experiments, with a view of showing the superiority of gun-cotton over gunpowder for blasting minerals and rocks. The experiments were tried in the limestone quarries near Dowlais, and, by the neglect and unskilfulness of the persons intrusted with conducting them, an explosion took place, by which the plaintiff and other persons were most seriously injured. The plaintiff, at the time of the accident, was in a fair way of realizing an honest independence, but by the accident, notwithstanding that every remedy possible had been tried, and the most eminent oculists employed, he had become totally blind, and rendered quite helpless. From the evidence of Mr. Martin, a mineral agent, it appeared that several experiments had been successfully made upon small portions of rocks, when Mr. Wheeler, who acted as the agent for the defendants, and conducted all the operations, was asked whether there was not a larger hole to be had for trying a more extensive experiment. Upon this, Mr. Wheeler tried to introduce a cartridge, containing 6 lbs. of cotton, which was equal to 36 lbs of powder, into another hole, but could not. He then said he would cut it open and put it in loose. Several persons asked him whether this would not be dangerous, but he said it would not, and commenced forcing the cotton in with a stick. It was then rammed in by another person with an iron bar, when an explosion ensued, and all that were near were injured more or less. The plaintiff was standing close to the hole. If the cotton had not been taken out of the cartridge no accident would have happened. On his cross-examination, Mr. Martin said that Mr. Wheeler showed him some notes, from the *Mining Journal*, of accounts of similar experiments with gun-cotton in South Wales; he said the *Mining Journal* had on several occasions contained notices of similar experiments, in mines and quarries, for blasting rocks, but to the best of his belief Wheeler did not say those experiments were made with loose cotton. Other evidence was produced to show that the experiments were not judiciously conducted. Mr. Justice Williams, in summing up, left three questions for the consideration of the jury, namely—first, if the agency of Mr. Wheeler, who conducted the experiments, was proved against the defendants; and secondly, if it was proved that the plaintiff attended by the invitation of the defendants; and, thirdly, if so proved, the amount of damages to which the plaintiff was entitled. The jury found a verdict for the plaintiff—Damages, 1500*l*.

THE ALKALI TRADE.—The extent and importance of the alkali trade of the Tyne may be inferred from the subjoined statistics. The annual consumption of salt is 42,000 tons; sulphur, 14,000 tons; nitrate of soda, 1100 tons; coals, 80,000 chaldrons; coke, 40,000 chaldrons; timber, 700 keels. The commercial product of these materials is about 37,000 tons of crystals of soda; 20,510 tons of alkali; 1500 tons of bicarbonate of soda; and 2000 tons of chloride of lime. Direct employment, too, is given to nearly 3000 individuals.

ANTIDOTE TO COPPER.—According to the celebrated chemist, Orfild, there is no remedy for poisoning by copper at all comparable to sugar—a discovery which we owe to Marcellin Duval; therefore, when a person is known to be poisoned by copper, he should be made to swallow sugar and syrup in large quantities.

THE GOLD WASHING DISTRICTS—No. III.

BY E. HOPKINS, C.E., F.G.S.

Primary rocks, composed of quartz and felspar, with a grey base, approaching to the character of porphyry, saturated with decomposed felspar, containing an excess of potash, with a small proportion of silica in solution, will, by time, produce a metallic efflorescence on the surface, and also fine crystals in fissures, and still more beautiful crystals in vacuities within the rocks. This variety of granite is more subject to form veins than the superficial production by decomposition. Gold and silver, and other metals least subject to oxidation, are commonly seen in a state of superficial efflorescence on the surface, and minute crevices of metalliferous rocks. The general appearance and also the action of this metallic growth observed on the face of the negative plate of a battery immersed in a metallic solution, thoroughly renders the analogy complete. The gold obtained from the washings at the foot of auriferous mountains is generally produced in this manner—that is, not from veins, but from a superficial efflorescence of the oxidated part of the crystalline mass. I have already alluded in my work on this subject to the slow chemical process which is constantly going on in all *moist* crystalline rocks, and that this perpetual action in the subterranean base gives rise to disturbances in the rocky structure, and also new production of metals, or rather causing a change from the fluid disseminated state to that of the aggregated crystalline solid state. These metals, during the act of their new formation, are again subject to become alloyed, or mineralized, by other elements, according to their respective degrees of affinity and local circumstances. Gold and platina are little affected, but tin is subject to oxidation; their respective degrees of purity indicate the character of the mode of production. This process of perpetual change in the mineral kingdom is as constant as the action of the sap in the growth of vegetation. The surface of the auriferous granitics of South America and the Isthmus of Panama, especially those varieties subject to decompose in spherical exfoliation, show this effect in a very remarkable manner. In depth we find the uniform crystalline structure, which, by fine grinding and washing, produces but a mere trace of a yellow tinge of gold; as we ascend, the crystalline aggregation passes, by an almost imperceptible gradation, into a kind of globular structure, like a coarse conglomerate; the respective nucleus of each centre of attraction becomes denser and harder than the parent rock by the concentration of the surrounding silica, like the formation of flints in chalk. Each nucleus becomes enveloped by a series of concentric envelopes, which enclose, as this structural change approaches towards the surface of the rock, an efflorescence of ferruginous mineral, containing gold in minute crystals and in grains. These grey compact silicious centres are called by the native gold-washers in South America, the "madres," or mother of the gold, as without these rounded nodules they seldom find sufficient gold in the debris to make it worthy of the labour of washing. The gold, as already noted, is in such a minute state of dissemination in the uniform crystalline base, as to make it almost difficult to detect the mere trace of it; but in the oxidated and decomposed crust the metals become aggregated to different centres, and form into grains, easily detected by the ordinary washing process.

The stony nuclea, as well as the concentric rings, are completely deprived of their original auriferous contents by this process of internal aggregation. I have many specimens from gold-workings of the above character. After these oxidated crusts are brought down by the torrents and washed away from the foot, or from the ravines of such mountains, the gold-washers must remove to other localities, or wait a few years until this slow process of Nature supplies them with a fresh crop, as they know to their cost that it would be useless to penetrate into the hard rock in search of the metal, as it must have a surface, vacuity, or a fissure, for its formation. Friable granites are exceedingly productive of alluvial deposits. The gold deposits of California are precisely of the same character, the quantity of the available gold being limited to the amount of the decomposed debris accumulated in the ravines. I know of no primary rocks of the above composition of quartz and felspar, and the friable ferruginous granites, with bright yellow mica, but what contain gold.

Gold and tin, if not embodied, or overpowered, by strong polar substances, such as sulphurets of iron, copper, or other compounds of similar polar tendency, remaining in the crystalline base in the disseminated state, they crystallize or effloresce towards the surface. If silicates happen to be in excess, they will produce a fissile structure, and the longitudinal action generated by which causes tension, and, consequently, a series of transverse fractures will take place; the surface of these internal planes becomes gradually coated by the metals the rock may contain, and thus forms veins. But if felspar happens to be the predominating ingredient, and this strongly saturated with iron, or any other substance susceptible of rapi-oxidation, or, if the compound be very friable, the exfoliated decomposition will ensue, the free silica aggregate into centres, the felspar is reduced into clay, the metal collects into grains, disintegration takes place, and the thin, loose, friable surface is gradually washed into ravines; the heavier substances fall to the bottom, and accumulate in pools and other parts of the steam presenting the greatest resistance, whilst the lighter particles are washed away by the torrent. Such is the general character of the deposits of the gold and tin stream-washings. These deposits are, therefore, the product of friable metalliferous rocks, and not derived from lodes, the metallic contents of which can only become available by this process of slow decomposition. The value of these deposits depends on the superficial extent of the metalliferous rocks falling towards the head of the ravine, and the level of the plains, to receive the accumulations of centuries. It will be easily conceived, that works of discovery, carried into the hard crystalline base, *beyond the deposit*, in such rocks, must prove fruitless; and if such explorations be carried on by men who have no other knowledge to guide them underground than the occasional specks of mineral in the rocks, priany quartz, &c., their reports would be "kindly and promising" until doomsday, and, consequently, an immense capital would be wasted away in unprofitable works, and which has been the case in almost every gold-working carried on by Europeans.

Gold has been often found in the tin-streams of Cornwall, and is frequently associated with the oxides of this metal in the schorlaceous granites, and frequently in the gossans, the oxidated portion of the lodes, and also in the ravines intersecting the ferro-felspathic rocks of Scotland. When the gold was discovered in the streams of Ballin Valley, in the county of Wicklow, in Ireland, almost the whole population of the neighbourhood flocked, like the Californians, to gather so rich a harvest, and actually neglected at the time the produce of their fields. Stream-works were established, and continuedfor a few years, and the products left a surplus over expenditure, and some large lumps were found. This, however, was soon lost, as well as another capital added to it, owing to the mistaken notion of the existence of a *mother lode*, whence it was supposed the fine deposit of gold came from.

The best miners of the old school were consulted, and encouraged this idea; the solid mass was soon intersected by numerous trenches, levels, shafts, &c.; every quartz string was driven through, under the impression of finding the grand source of this wealth, but of no avail; with the exception of occasional grains in vacuities, or joints, nothing was found worthy of notice, and the undertaking was abandoned. Yet these same valleys still furnish a small amount of gold annually, and will continue so to do whilst the granitic domes remain subject to decomposition.

MINING IMPROVEMENT IN IRELAND.—We have great pleasure in stating that the shareholders of the Newtownards Mining Company have presented their respected agent, Capt. Silas Evans, with a splendid service of plate, value 100*l*., in consideration of his inestimable services in conducting their mine at Newtownards, whereby they have been brought from a ruinous state to a profitable condition. The following inscription is beautifully engraved on the plate:—"This service of plate is presented by the Newtownards Mining Company to Capt. Silas Evans, as a testimonial of their unqualified approval of the skill and ability displayed by him in bringing the mine into its present valuable condition. 21st January, 1850."

The Legislative Council of Sydney has presented an address to his excellency the Governor, praying that a sum of 210*l*. may be put upon the estimates for 1850, to enable the Rev. W. B. Clarke to publish a report of his geological researches in Australia, illustrated with maps and sections. The rev. gentleman asks no remuneration for his labours beyond that of having a few copies for distribution among his scientific friends in England. This work will contain a geological survey of 10 counties. A vast number of specimens have been collected by him, the whole of which, it is believed, will be deposited in the Museum. This book is likely to attain a very high reputation among scientific men, and those interested in the development of mineral wealth, emanating, as it does, from the pen of a gentleman of such distinguished abilities.

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

WEDNESDAY ..London Life Assurance Company—offices, at Twelve.
THURSDAY ....Palladium Life Assurance Company—offices, at Twelve.
Merchants' and Tradesmans' Mutual Life Assurance Co.—offices, Twelve.
FRIDAY .....Oxford, Worcester, and Wolverhampton Railway—London Tavern, One.

[*The meetings of Mining Companies are inserted among the Mining Intelligence.*]

NEW BRUNSWICK AND NOVA SCOTIA LAND COMPANY.

The annual meeting of this company was held at the offices, in Copthall-court, City of London, on Thursday, the 14th inst., on the general business of the company. JOHN MOXON, Esq., in the chair.

The following report was read to the meeting:—

On reference to the Stanley cash account for the past 12 months, it will be perceived that, although great pressure and distress continued to exist throughout the province in the first three-quarters of the year, still the receipts, under the head of timber and land, have somewhat increased—the total having been 584*l*. 19s. 6d., instead of 483*l*. 18s. 6d. in 1848. With regard to the colonial expenditure, which, by the office letter of Feb. 7, 1849, was limited to 502*l*. sterling, the directors are of opinion, after carefully reviewing the correspondence, that Capt. Hayne has exerted himself to carry their instructions into effect, as far as was advisable under the circumstances. The expenditure has, however, been 749*l*. 9s. 8d.—that is, 625*l*. sterling, instead of 502*l*. A portion of the excess has occurred under the head of roads and bridges, arising out of payments for provisions and work, which Capt. Hayne was compelled to afford to some of the poorer settlers, who were more than usually distressed at the opening of the season, in consequence of the scanty harvest of 1848, and the remainder will be found under the head of law expenses, which were increased by an action brought to recover from a security a debt of 480*l*. currency, due to the company. The verdict was given in the company's favour, but was reversed on reference to the judges; and while the directors were deliberating under the opinion and advice of their provincial solicitor, as to referring the case once more to a higher court—a course which they declined to follow in the existing state of provincial credits—the security against whom the original action had succeeded suspended payment, and left the province. Owing to this circumstance, and to the consequent failure of cash receipts (the uncertainty of which was alluded to in last year's report), the deficiency at Stanley has amounted fully to the sum then estimated.

On referring to the London balance-sheet, the proprietors will observe that the amount received on calls (1421*l*. 10s.), which has been paid upon 142,150*l*. stock, has been employed in paying Capt. Hayne's drafts, and in discharge of the remaining loan due to the bankers: leaving the sum paid for charges in London, as nearly as possible that estimated in last year's report.

The drafts drawn on balance by Capt. Hayne, during 1849, have amounted to 848*l*.—of which 251*l*. was in discharge of the balance debit at Stanley, 31st Dec., 1848; 429*l*. deficiency of 1849 on the management of the tract; and the remainder (178*l*.), on account of cash deposited by settlers in 1848.

With regard to the current year, it will be recollected that the further and stringent economy resolved upon, at the directors' meeting, 7th Feb., 1849, and which could be made applicable only to one-half of last year, will take effect wholly in 1850, and the London estimate is, consequently, as follows—viz.:

Cash balance at Messrs. Williams and Co., 31st Dec., 1849	£ 40	10	7
Remaining to be received on the call due, Jan., 1848	89	10	0
Ditto ditto on the call of July, 1849	276	0	0
Total due to the company for 1850	£406	0	7
Against which the payments will be as follows—viz.:			
One draft of Capt. Hayne, to close his account for 1849	£120	0	0
Office in London and sundries	250	0	0
Total payments for 1850 estimated at	£370	0	0

Should the arrears of calls, included in the above estimate, be realised, the directors trust that the receipts and payments will be equalised. Capt. Hayne's letter of 19th Feb. last having explained that (after paying off balance against the company, 31st Dec., 1849, out of the proceeds of the bill last authorised) the Stanley receipt for the year will, if merely equal to that of 1849, suffice to defray the charge to which he has been limited. The sales of land in 1849 have amounted to 2568¼ acres; full price, 608*l*. 14s., or about 4s. 8¼d. per acre. This is 301 acres less than the quantity sold in 1848, and 750 acres more than in 1847. The two Acts passed by the House of Assembly in 1849—by one of which settlers owing arrears of purchase money are allowed to pay in roadwork; while, by the second, new settlers are allowed to divide the cost price into small instalments, at the discretion of the executive—have not, therefore, operated against the company's sales to the extent which might have been anticipated. The total quantity sold from the commencement now amounts to 31,946¼ acres; and the quantity remaining unsold is 528,317. The amount remaining due upon land sales is 4659*l*. 8s. 4d. currency.

A bill has been laid before the Legislature of the United States proposing to convey land to the settler gratis, merely on condition of settlement and cultivation. As this additional facility to purchasers of land in the United States will do little more than pay the cost of the land journey, your directors are inclined to believe that this measure, if passed, will not operate so much as might at first be supposed against sales of land in the province of New Brunswick, where the price is already very low, the terms of payment extremely easy, and the expense of the land journey insignificant. The company's agricultural prize report, dated September last, signed by the judges, of which a printed copy was sent to every stockholder about the close of last year, shows that the farms of the competing settlers have been much extended and improved, as exhibited by the new clearings, and by the amount of stock and crops. It is satisfactory to add that the harvest of 1849 was abundant. A considerable body of prosperous and influential freeholders being now established at various places on the company's tract, the House of Assembly have continued their usual votes for bridges and main and bye-roads. In consequence of these, and of the previous and present yearly expenditure of the company in aid, Capt. Haynes's letters state that great improvements have taken place in the Keswick, Springfield, and Nackawickac settlements; that the Taxas and Miramichi road is well finished, and will facilitate new settlements; that all the roads are much improved, and that the road from Fredericton to Stanley is better than half the roads in British America.

The directors observe with great satisfaction that, in proportion to the decline in the timber trade, there is a marked and growing attention to agricultural pursuits. At the meeting of the Agricultural Society for York County, two prizes for wheat were gained by settlers at Stanley. A lengthened visit to the province has been concluded by Prof. Johnston, at the invitation of the authorities, for the purpose of examining and lecturing upon its capabilities for agriculture; in consequence of this visit a report, addressed to the Government by the Professor, will be printed and circulated in the course of the present season. Professor Johnston also visited Stanley while on his tour through the province. Perfectly favourable as the climate of New Brunswick has always been known to be to natives of Great Britain, and of the north of Europe generally, it is gratifying again to report that no case of Asiatic cholera has occurred in the province in 1849, any more than upon its first visitation in 1832-3. Considering the pressure and distress which have existed for about two years past in British America, and the increased economy also exercised by the home Government in money grants, the proprietors will be prepared to find that no progress has been made towards the execution of the projected line of railway from Halifax to Quebec. Although the Commissioners of Railways have reported against the expediency of making the line, on the ground that it cannot be expected to pay as a commercial speculation, the data upon which, as it seems to the directors, a confident expectation may be entertained that this great work will be undertaken by a combination of the credit of the home and colonial Governments, remains, upon the whole, as strong as before, notwithstanding the progress which is making on the shorter route between Portland and Montreal—they are the surveys of the line, which have been made at the expense of the authorities; the position and capacity of the harbour of Halifax, its proximity to Great Britain, and its accessibility at all seasons, and the constantly growing necessity for the establishment of a certain and speedy communication between England and the Canadas, by a British line of road. In the event, also, of the abolition of the timber duties, it will probably be expedient to substitute, at least for a few years, for the cessation of labour in the timber trade, employment, on a large scale, in useful public works of the kind alluded to. It is with great regret that the directors have to announce to the stockholders the decease of Richard Godson, Esq., M.P., late governor of this company. The directors beg leave further to report that the following directors and auditor go out of office this day by rotation:—Richard Blanshard, Thomas Butts, Philip Gowan, George Nicholls, Thomas Newnham, and Newman Smith, Esqrs., directors, and Edward Stewart, Esq., auditor; all of whom, being eligible, offer themselves accordingly.

The CHAIRMAN moved the adoption of the report, which, having been seconded, Mr. BRUCE stated, on behalf of himself and other proprietors, the disappointment felt at the amount of outstanding arrears due from settlers, and that it was his opinion that, on this precise point, the directors and chief commissioner had not been so vigilant as the proprietors might have expected. He approved generally of the information and details conveyed by the report and accounts, still he felt it his duty to make the observations he did, seeing they would, at all events, arm the directors with some power in collecting those arrears. (Hear, hear.)

The CHAIRMAN stated, in reply, that the chief commissioner and the directors had used as much forbearance as possible under this head during the difficulties under which the province of New Brunswick had suffered, in connection with other countries. In advising the proprietors to leave this matter to the discretion of the directors, he would take the opportunity of saying that the remarks of the hon. gentleman were perfectly just in themselves, and that they would strengthen the directors' hands in dealing with the subject. (Hear, hear.) It was, however, the opinion of the board that the good harvest of last year, and the improved circumstances of the settlers, would enable them to report a better collection of arrears in 1850 than for the past two years.

The report was then adopted unanimously.

The following gentlemen were then re-elected unanimously—viz.: Richard Blanshard, Esq.; Thomas Butts, Esq.; Philip Gowan, Esq.; George Nicholls, Esq.; Thomas Newnham, Esq.; Newman Smith, Esq.; and Edward Stewart, Esq., was re-elected an auditor of the company.

A vote of thanks was then passed to the worthy chairman and directors, when the meeting separated.

WATERFORD AND LIMERICK.—The committee on this company's bill, of which Mr. Bernal is the chairman, have reported that it should be treated as an opposed private bill, on the ground that the promoters, whose bill contains provisions respecting the compulsory possession of and entrance upon lands, seek to incorporate with the Act now applied for several clauses of a public Act, "to authorise the advance of money out of the Consolidated Fund to the Midland Great Western Railway of Ireland." As this public Act relates to a distinct undertaking, and is of special application, the committee are of opinion that this proposed application of a new principle into the system of private bill legislation, is especially deserving the attention of the House.

SOUTH STAFFORDSHIRE.—A correspondent writes: "It is said one of the principal conditions in consideration of which the London and North-Western Company have agreed to withdraw their opposition to the leasing of this line to Mr. M'Clean, is that no facility whatever shall be afforded by the lessee at any of his stations for receiving or transmitting goods on to the North Staffordshire Railway.

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THE MINING ALMANACK for 1850: compiled and arranged

by HENRY ENGLISH, Mining Engineer, &c. Under the especial sanction and patronage of H.R.H. PRINCE ALBERT, Lord Warden of the Stannaries, Chief Steward of the Duchy of Cornwall, Devon, &c.—THE SECOND VOLUME will appear early in APRIL next, with ADDITIONAL TABLES and STATISTICS, connected with the Mining Interests.—Names of subscribers are requested to be addressed to Mr. H. English, 25, Fleet-street.

Will be ready for publication in a few days,

MONEY VERSUS LIFE: A REVIEW of COLLIERY

CASUALTIES—showing their Cause and Extent—the Parsimony of Coalowners—the Concealment of Deaths in Mines—the Inaccuracy of Returns by Coroners—the necessity of Government Inspection, more Shafts, and adequate Provision for Widows and Orphans of the Victims to Explosion, &c.—with the means to provide for the same without unjust taxation;—also showing the Clemency of Government towards the Coalowners of the North. By C. COLWELL.—Price 3s. 6d.

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SEWERAGE OF LONDON.—The ATTENTION of the

COMMISSIONERS appointed to determine upon the MOST EFFICIENT MATERIAL for the CONSTRUCTION of the SEWERS OF LONDON, is particularly directed to the ASPHALTE OF SEYSSEL, which more than any other material is applicable to the CONSTRUCTING and INTERNAL COATING of BRICK CULVERTS and OTHER CHANNELS for DRAINAGE.

The experiments made by the Royal Artillery on the embrasures of Plymouth Citadel, constructed of Seyssel Asphalte Brickwork, under the orders of the Hon. Board of Ordnance, have fully proved the superiority, adhesiveness, and strength of Seyssel Asphalte over all other cementitious compositions. A printed account of these experiments can be had on application to I. FARRELL, Secretary,

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Note.—The application of the Asphalte of Seyssel is specially recommended by the Commissioners on the Fine Arts for covering the ground line of brickwork in marshy situations, and it has been suggested that it would be peculiarly applicable for covering the *areas* of closed *grave yards*, and for the construction of *catacombs*.

THE TEETH—DENTAL SURGERY.—Mr. GAVIN, SUR-

GEON DENTIST, 33, SOUTHAMPTON-STREET, STRAND, begs to call the attention of his patients and the public generally to his recent important improvements in ARTIFICIAL TEETH, and to his perfect and painless system of fixing them in the mouth, by which successful and scientific principle the removal of roots, or any painful operation whatever, is entirely obviated. Old pieces of teeth, or misfits remodelled and adapted to the mouth with security and comfort. Mr. Gavin begs also to state, that, notwithstanding his late invaluable improvements in dental science, he still insures the same moderate charges and successful treatment which have procured him such extensive patronage.—A single tooth.....from £0 5 0

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ACCIDENTS.

A frightful accident occurred on Wednesday morning at the works in the Great Southern and Western Railway tunnel, near Cork, an explosion of a blasting having taken place after the men had come from their shelter, under the misapprehension that all the blasts had exploded. Two men were killed on the spot, and several other shockingly wounded, one of them not being expected to survive.

Wigan.—An explosion took place at one of the collieries belonging to the Ince Hall Coal and Cannel Company, whereby J. Tabener, the fireman, was severely burned, and W. Mercer and T. Worthington more or less injured. It appears that, the pit being considered free from dangerous gas, the underlooker omitted taking the necessary precaution of using the safety-lamp on entering the pit, but proceeded, followed by his companions, to examine the workings with a naked candle, when the foul air which had accumulated during the preceding day (Sunday) suddenly ignited.

Borcaswell Downs.—W. Davey lost his sight by the premature explosion of a blast.

Ballewidden.—A miner, named Veal, was killed by the falling of a piece of ground.

Wheal Fortune, Breage.—As J. Burgess was wheeling a barrow near a shaft, he slipped his foot, fell into the shaft, and was killed on the spot.

Gelly Colliery, Llanelly.—As a boy, 13 years of age, was at work, a stone, weighing some tons, fell and crushed him to death. Two men were standing near at the time, and escaped with slight bruises.

Durham.—Benjamin Johnson, a child nine years of age, son of a pitman, at Elemore Colliery, was killed by a cage falling on him.

Cardiff.—W. Gibson had both his arms dreadfully crushed, by being drawn into the machinery at Mr. Crawshay's iron-works; one was amputated near the shoulder.

Bolton.—As James Barlow, a miner, aged 38, was working in a mine belonging to J. Knowles, Esq., in driving a rammer, in blasting with powder, an explosion took place from the friction upon the hard mineral, when a portion of his head was blown off, and he died instantaneously.

Fatal Accident to a Woman at Messrs. Williams and Foster's Copper Works.—An inquest was held at the Smelters' Arms, Craig Trwyddfa, near Morriston, on the body of Anne Rees, aged 34. It appeared that the deceased was employed at the copper works in wheeling the coal from the tipping place to the furnaces. A man, named Thomas, was employed in wheeling the coal over a tramway to the tipping place. It appeared that the latter pushed his waggon too far, and it struck the deceased violently in the back, throwing her forward until her breast rested on her wheelbarrow. She was thus crushed between the two, and died shortly after from the injuries received.—*Swansea Herald.*

Dudley.—Thos. Pearson (son of a butty) and John Tranter were killed by a fall of 8 or 9 tons of coal, while engaged in filling the band down a pit connected with Messrs. Cochrane and Co.'s colliery. It is stated that no less than seven persons have been killed at this colliery within the last four or five months by similar accidents.——J. Davies and C. Fellows were so dreadfully injured by a similar occurrence at the Baptist Hand Colliery, worked by Mr. Crewe, that they survived but a few hours only. The deceased men were at the time of the sad occurrence (which was stated to be quite accidental) also working in the band.—*Worcestershire Chronicle.*

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Bate's West Hartley 14 6—Carr's Hartley 14 6—Chester Main 13 9—Davison's West Hartley 14 9—East Adair's Main 12 6—Hastings Hartley 14 6—North Percy Hartley 14 6—New Tanfield 13 6—Old Tanfield 13—Tanfield Moor 14 6—Tanfield Moor Butes 13—West Wylam 15—Wylam 15—Wall's-End Brown 13—Burraton Killingworth 14—Gosforth 14—Hilda 14—Original Gibson 14—Walker 13 9 to 14—Eden Main 15 6—Bell 15—Belmont 15 6—Braddyll 16—Hetton 16 9—Haswell 17—Lambton 16 6—Lumley 15 3—Russell's Hetton 16 6—Stewart's 16 6 to 17—Caradoc 15 6—Cassop 15 6—Denison 13 9—Heugh Hall 14 6—Kelloe 16—South Kelloe 14—South Hartlepool 15 9—Thornley 15 9—Cowndon Tees 14—Tees 16 9—Cowpen Hartley 14 9—Derwentwater Hartley 14 6—Hartley 14—Howard's West Hartley Netherton 14 9—Llangennech 24—Sidney's Hartley 14 9.—Ships at market, 306; sold, 102.

WEDNESDAY.—Bate's West Hartley 14 3—Buddle's West Hartley 14 6—Carr's Hartley 14 6—Chester Main 13 6—Davison's West Hartley 14 6—East Adair's Main 12 6—Hastings Hartley 14 6—North Percy Hartley 14 3—New Tanfield 13 6—Old Tanfield 12 6—Pelton Main 12 6—Ravensworth West Hartley 14 6—Tanfield Moor 14 6—Tanfield Moor Bute's 13—West Wylam 14 9—Wall's-End Brown 13—Gosforth 14—Hedley 14—Hebburn 13 9—Riddell 13 9—Walker 13 9—Eden Main 15 6—Belmont 15 6—Braddyll 16—Hetton 16 6—Haswell 16 9—Jonassohns 14 9—Lambton 16—Lumley 15—Russell's Hetton 16—Scarborough 15 6—Stewart's 16 6—Caradoc 15 3—Cassop 15 6—Denison 14—Heugh Hall 14 6—Hartlepool 16 6—Kelloe 16—South Hartlepool 15 9—Thornley 15 9—West Hetton 14 3—Cowndon Tees 14—Maclean's Tees 13 3—Seymour Tees 14—South Durham 14—Tees 16 6—Birchgrove Graigola 21—Cowpen Hartley 14 6—Hartley 14—Sidney's Hartley 14 9.—Ships at market, 272; sold, 113.

FRIDAY.—Carr's Hartley 14 6—Chester Main 13 6—East Adair's Main 12 6—Hastings Hartley 14 6—Holywell 15 6—New Tanfield 13 3—Old Tanfield 12 6—Ravensworth West Hartley 14 6—Tanfield Moor 14 6—Tanfield Moor Bute,s 13—Townley 14 6—West Wylam 14 9—Wall's-End Brown 13—Burraton Killingworth 14 3—Percy 13 6—Walker 13 9—Eden Main 15 6 Belmont 15 9—Braddyll 16—Hetton 16 9—Haswell 17—Jonassohn's 13 9—Lambton 16,3—Lumley 15 3—Russell's Hetton 16,3—Stewart's 16 9—Caradoc 15 6—Cassop 15 6—Denison 14—Fox's Hartlepool 14—Heugh Hall 14 9—Hartlepool 16 9—Kelloe 16—South Hartlepool 15 9—West Hetton 14 3—Whitworth 13 6—Adelaide Tees 15 6—Cowndon Tees 14—Maclean's Tees 13 3—Seymour Tees 14 3—South Durham 14 3—St. Helen's Tees 13 6—Tees 16 9—Birchgrove Graigola 21—Cowpen Hartley 14 6—Derwentwater Hartley 14 6—Sidney's Hartley 15.—Ships, 199; sold, 105.

TO MINERALOGISTS, GEOLOGISTS, CONCHOLO-

GISTS, NATURALISTS, &c.

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PROSPECTUS.

BOTTLE HILL TIN AND COPPER MINE is situate in the parish of PLYMPTON ST. MARY, in the county of DEVON, about 7 miles from Plymouth, and 2 miles from the Plympton Station of the South Devon Railway.

The sett is very extensive, being about 1 mile in length on the course of the lodes east and west, of which there are six in number, and about half a mile from north to south. The north part of this sett is composed of granite, of a character congenial for mineral deposits—the old workings being in killas, or clay-slate stratum, with a great cross-course and several small ones, running north and south.

A deep adit has been brought up to drain the mine, at a cost to the late adventurers of £12,000; an engine-shaft sunk 110 fathoms from surface, giving 60 fathoms of backs above the deep adit level. A great portion of this ground could be taken away at a tribute of 10s. to 12s. in the £1, within one month from the recommencement of operations, which would very considerably assist the cost of the mine. In order that the workings should be fairly and regularly prosecuted, it is necessary that a steam engine should be erected, which will prevent any delays at any season—it having been ascertained that in very dry summers and severe winters, operations have been suspended nearly three months in the year, but it is considered that the engine would not be required more than two months, on an average, during the year. The expense of this steam-power having been taken into consideration by the lord, he liberally reduced the dues to 1-20th.

It will be seen from the following reports, that this mine was abandoned by the late adventurers at the very time when good returns of tin were being made, but the water-wheel having broken down, and the machinery generally not being in a fit state to work the mine, and the tin market being at that time very depressed, many of the shareholders declined to expend money in the erection of any new.

Tin and copper ores were sold during the last workings of the mine to an amount exceeding £100,000, which is sufficient to prove the character of the sett.

There is now left in the bottom of the 50 fathom level a large quantity of tin-stuff already broken, with tramroad, waggon, miners' tools, and the bottom of a 14-inch plunger, which, with the counting-house, agent's house, material house, smiths' shop, and burning-house at surface, cannot be taken at a less value than £1000. The mine will be worked strictly on the Cost-book Principle. A deposit of £1 per share will be required to be paid to the Devon and Cornwall Banking Company's banks, as soon as the shares are subscribed for—remainder, if required, by instalments of £1 every two months.—Twenty-four shares are reserved.

Application for shares to be made to Mr G. Trickett, Post-office Chambers, Plymouth; Mr. John Metherel, sharebroker, Tavistock; Mr. Thos. Dunn, Matthew-street, Tavistock; Mr. John Hamlyn, mining agent, Drake's Walls, Calstock, Cornwall; Mr. John Williams, Roseland Foundry, Liskeard—and of whom all further information can be obtained.—Prospectuses may also be had at the *Mining Journal* office, 26, Fleet-street, London.

Report of Capt. WILLIAMS, *as Agent in the former workings of the Bottle Hill Mine.*

SIR,—According to your request, I beg to send you my report of Bottle Hill Mine, and I hope you will pardon me, if, in doing so, some part of what I say should appear prospective, as it seems to me that I cannot do justice to the concern by merely giving a report of her present state, without adverting, in some measure, to what transpired under my notice in the last workings of the mine; and taking that as a rule, as to the probable results in case of her resumption by another company.

It seems probable to me, that whoever resumes the mine, one of their objects would be to sink deeper; and assuming this, it follows, as a matter of course, that the deepest level at present in the mine is the most important point to report on, which I now proceed to do. The 50 fathom level is driven east from Strode's shaft to some fathoms beyond Fizze's shaft, a distance of about 100 fms.; the greatest part of this driving was found poor, though some good stones of tin were found in places; but under Fizze's shaft the lode was found very good for about 10 fathoms in length, and worth about £35 per fathom, and some tons of tin were taken away from this place, and dug up as deep as possible under the bottom of the level, immediately before the abandonment of the mine altogether. Now, this is a short piece of lode, but it was invariably found in working the mine, from level to level, that the tin ground differed in length very much; in the next level above the 50 (the 34), it was found long, extending from west of Viguss's shaft to as far east as Fizze's shaft, a distance of about 70 fathoms; but in the 28 fathom level it was somewhat shorter, and so it continued throughout the working. This circumstance might appear strange to those unacquainted with the mine and its neighbourhood, but the cause, no doubt, is the great number of inclinations to which the lodes in this mine are subject, by cross-courses, which, in this mine, are more numerous than in any other I have ever seen, and they are not all continuous from one level to another (or they are not to be perceived) as in most other mines, but a number of them seem (to use a mining term) to make between levels, though there are two or three master ones, which continue their course from the surface to the bottom of the mine; and as there is a cross-course in the 50 fathom level, a great distance to the west of the present deposit of tin, and as there were found, when it intersected the lode, some splendid stones of tin, and the level being driven through a promising, though not a rich, lode, from that point to the tin ground before-mentioned, and judging from what I have seen in the levels above, I am strongly of opinion that, by sinking the mine 20 fathoms deeper, a good mine would be found; and if I might be allowed to express a further opinion on this point, I would say, that I believe that if a steam engine were erected, the water drawn out, and the works prosecuted according to the rules of good mining, that from this place alone more than sufficient tin might be raised to pay the cost of the mine.

There is other ground that might be taken away at a profit in other parts of this lode, both on tribute and otherwise.

The next point to which I would draw attention is the south lode (so called), which is the next lode south from the last described. On this lode a quantity of copper and tin has been raised; and while it was productive it was wrought on, which was on the shallow levels, but very little further; and in the levels deeper than 10 fathoms under the adit, it has never been seen.

There are three [illegible] lodes, south of the last-named, but on which nothing has been done within the present age; but there are traditions of their having been found productive on the backs by the ancients. There are also two or three lodes to the north of the one first reported on; from one of which, in the best workings, about 40 fathoms under the surface, some good tin-stuff was produced. It is a very promising lode, and in good ground, but the work done on it has been very limited.

In conclusion, I might be permitted to say, that I am of opinion that any company with sufficient capital, combined with good management, would, in due time, find this a good and profitable undertaking; as, in taking a geological view of the mine and its neighbourhood, the observer is at once struck with its very peculiar mining features; and, as a proof of its productive nature, it is only sufficient to know the amount of tin and copper produced—principally from one lode—amounting to more than £100,000 worth, by modern miners, without referring to the ancients, who mined extensively here. The mine is in killas, of a very congenial nature, and within one-quarter of a mile of granite on the east, into which the lodes are running. I am your obedient servant,

RICHARD WILLIAMS,

An agent in the former workings of Bottle Hill Mine.

Plympton, Devon, Dec. 6, 1849.

Report of JAMES EDDY, *now working in the Devon Great Consols.*

SIR,—I worked in Bottle Hill Mine 13 years, and was there up to the stopping of the mine; and up to that time we continued to raise about 5 tons of tin per month. The greatest part of this tin was raised about Fizze's shaft. At that time I worked as a miner at the back of the 56 fathom level on tutwork, and, to the best of my knowledge, we had £3 per fathom for stoping. This is a good tinny lode. The lode in the bottom of the 50 fathom level I consider to be worth £40 per fathom. At the time the mine was stopped neither the captain nor the men knew the value of the lode, until the lode went under the stamps, and we were all surprised when it was returned; but at this time the materials were all drawn from the bottom of the mine. The mine was, therefore, stopped in the face of a good course of tin. There is a quantity of tin-stuff now lying underground, broke by myself and partners, which I think is worth at least £300, besides a tramroad, tram-waggon, bottom of a 14-inch plunger-lift, miners' tools, &c., worth more than £400. I believe Bottle Hill to be one of the best tin and copper mines in the west of England, if put to work and properly managed.

I am, Sir, your obedient servant, JAMES EDDY.

Report of WILLIAM BARRETT, *Miner, Bottle Hill.*

SIR,—I worked as a miner at Bottle Hill Mine 20 years, and was there when the mine was stopped. At the time we knocked off working we were raising good quantities of tin, most of which was taken from Fizze's shaft. I was one of the last pare that worked in the bottom of the 50 fathom level, where there is a good tin lode, worth more than £30 per fathom, but if tin was selling at £50 per ton, I should think the lode would be worth nearly £50 per fathom. The back of the 50 was a good tinny lode, but not as rich as the bottom. There is a large quantity of tin-stuff in the bottom of the mine which was never brought to surface, on account of the machinery breaking down, which was never again put in order, and the mine was stopped with the same. There is also in the bottom of the mine a tram-waggon, tramroad, and the bottom of a large plunger, besides a quantity of miners' tools.

Reports of CHARLES BLANCHARD, *who worked in Bottle Hill Mine for Thirty-five years, and* JOHN FARLEY.

SIR,—We herewith beg to hand you a report of Bottle Hill Mine, having worked in her for many years—in fact, from the commencement of her last working by Mr. Hitchens, until she was stopped by Captain Williams.

There are in Bottle Hill Mine three parallel lodes—namely, a south lode, a middle lode, and a north lode. On the south lode there has been but little done in the deep adit, which is 60 fathoms deep. From this lode there has been a great quantity of both tin and copper returned, of good quality; some of the copper ore has made £17 per ton. There is a very kindly lode in the adit end now.

The middle lode has been worked 50 fathoms under the deep adit. There is a sink in the bottom of this level, about 4 feet deep, and the lode in this place is from 10 to 12 fms. long—worth from £35 to £40 per fathom. There is also standing a piece of lode from 60 to 70 fathoms long, and from 10 to 12 in height, above the 50, and many pitches on this lode might be set out on tribute above the 50 fm. level at the present price of tin.

There is a railroad in the 50 fathom level, upwards of a 100 fathoms in length—a good pile of tin-stuff broken, a tram-waggon, miners' tools, and a great part of a plunger-lift, worth at least £200, which could not be taken away, in consequence of the machinery breaking down and the water coming in.

On the north lode very little has been done. This lode was cut in sinking Strode's engine-shaft, at nearly 40 fathoms deep. There have been some very good stones of tin broke on this lode, and it is worthy of a further trial—but little having been done, little can be said about it.

During the last workings there was nearly £120,000 worth of tin and copper returned in this mine. Should you, or any other person, desire further information, we are willing to afford all we know about it. We are, Sir, yours, &c.,

CHARLES BLANCHARD, JOHN FARLEY, Sen.

Homerdon, Plympton St. Mary, Devon, Jan. 1, 1850.

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